



# Papa lanchata jarkanata yachankapak ñankamu

**Paola A. Cáceres**  
**Manuel Pumisacho**  
**Gregory A. Forbes**  
**Jorge L. Andrade-Piedra**

**Centro Internacional de la Papa (CIP)**  
**Instituto Nacional Autónomo de Investigaciones  
Agropecuarias del Ecuador (INIAP)**  
**Secretaría Nacional de Ciencia y Tecnología del Ecuador  
(SENACYT)**



**Papa lanchata  
jarkanata  
yachankapak  
ñankamu**

**Paola A. Cáceres  
Manuel Pumisacho  
Gregory A. Forbes  
Jorge L. Andrade-Piedra**

**Noviembre 2007**



**Centro Internacional de la Papa (CIP)**  
Apartado Postal 1558, Lima 12, Perú  
Tel.: +51-1-349-6017  
Fax.: +51-1-317-5326  
E-mail: [cipotato@cgiar.org](mailto:cipotato@cgiar.org)  
[www.cipotato.org](http://www.cipotato.org)



**Proyecto Papa Andina**  
Centro Internacional de la Papa (CIP)  
Apartado 1558, Lima 12, Perú  
Tel.: +51-1-349-6017  
Fax.: +51-1-317-5326  
E-mail: [a.devaux@cgiar.org](mailto:a.devaux@cgiar.org)  
<http://papandina.cip.cgiar.org>



**Instituto Nacional Autónomo de Investigaciones Agropecuarias del Ecuador (INIAP)**  
Programa Nacional de Raíces y Tubérculos - Rubro Papa (PNRT-Papa)  
Estación Experimental Santa Catalina Panamericana sur km 1  
Quito, Ecuador  
Tel: +593-2-2690-364  
Fax: +593-2-2694-922  
E-mail: [fpapa@fpapa.org.ec](mailto:fpapa@fpapa.org.ec)  
[www.fpapa.org.ec](http://www.fpapa.org.ec)



**Secretaría Nacional de Ciencia y Tecnología del Ecuador (SENACYT)**  
Av. Patria 850 y 10 de Agosto  
Quito, Ecuador  
Casilla: 17-12-404  
Tel: +593-2-2505142  
Fax: +593-2-2509054  
E-mail: [info@senacyt.gov.ec](mailto:info@senacyt.gov.ec)  
<http://www.senacyt.gov.ec/>

Papa lanchata jarkanata yachankapak ñankamu.  
ISBN: 978-92-9060-331-3

Centro Internacional de la Papa. Instituto Nacional Autónomo de Investigaciones Agropecuarias del Ecuador. Secretaría Nacional de Ciencia y Tecnología del Ecuador

### **Rurakkuna**

Killkakkuna: Paola A. Cáceres, Manuel Pumisacho, Gregory A. Forbes, Jorge L. Andrade-Piedra.  
Killakkunata allichik: Shirma Guzmán  
Kamuta sumakyachik: Alfredo Puccini B., José Jiménez  
Rikchata llukchik: Wilmer Pérez  
Kichwaman yallichil: ERPE-Riobomba  
Kamuyachik: Noviembre 2007  
Mashna kamukuna: 500 rurashkakuna  
Quito villapi rurashka, Ecuador

### **Mayllamanta yachayta japishka**

Cáceres, P.A., Pumisacho, M., Forbes, G.A., Andrade-Piedra, J.L. 2007. Papa lanchata jarkanata yachankapak ñankamu. Centro Internacional de la Papa (CIP), Instituto Nacional Autónomo de Investigaciones Agropecuarias del Ecuador (INIAP), Secretaría Nacional de Ciencia y Tecnología del Ecuador (SENACYT). Quito, Ecuador. 142 pankakuna.

Centro Internacional de la Papa (CIP)  
Apartado 1558, Lima 12, Perú • Tel.: +51-1-349-6017 • Fax: + 51-1-317-5326  
E-mail: [cipotato@cgiar.org](mailto:cipotato@cgiar.org) • Web: [www.cipotato.org](http://www.cipotato.org)

1. Tizón tardío. 2. *Phytophthora infestans*. 3. Papa. 4. Capacitación. I. Paola A. Cáceres, Manuel Pumisacho, Gregory A. Forbes, Jorge L. Andrade-Piedra. II. Papa lanchata jarkanata yachankapak ñankamu. III. Centro Internacional de la Papa, Instituto Nacional Autónomo de Investigaciones Agropecuarias del Ecuador, Secretaría Nacional de Ciencia y Tecnología del Ecuador.

## Yupaychay

---

Yupaychanchikmi kay ñankamuta rurankapak ashkata yanapak mashikunaman:

Yachay tantanakuyman rikkunaman kay yachayta rurankapak “Allpa tarpuk mashi kunapak minishtirishkakunata allichinkapak papa lanchata jarkanpak”, Conocotopi rurashka, Ecuador, 13 - 15 de febrero punllakama 2006 watapi, paykunami chay llankayta rurashpa yanaparkakuna papa lanchata jarkanapak imalla ruramanta yachaypak chaymanta kankunamanpish yupaychanchikmi: Aníbal Agualongo, María Arguello, Rodrigo Aucancela, Sofía Ayala, Digna Chacha, Oswaldo Chela, Meter Kronman, Hernán Lucero, Crisanto Quilligama, Jorge Revelo, José Ninabanda, José Ochoa, Ricardo Orrego, Berta Pomaquero, Pedro Oyarzún, Arturo Taipe, Gram. Thiele, Raúl Toalombo, Juan Vallejo shinallatak Fausto Yumisaca.

Vicente Zapata mashika yachay tantanakuyta rurashpa shinallatak kay kamuta rurankapak kallari yachaykunata rurashpa yanaparka.

Escuela de Campo de Agricultores ECASpi yachak mashikuna San Francisco de Rumipamba ayllullaktamanta, Atandagua shinallatak Bolívar markamanta Vaquería ayllullakta, Ecuador, paykunami papa lanchata jarkankapak minishtirishkakunata rurashkakunata alli kakta mana alli kaktapish rikuchun sakirkakuna.

- ▶ San Francisco de Rumipamba: Miguel Agualongo, Carlos Altamirano, Gonzalo Arevalo, Héctor Averos, Angel Borja, José Cando, Gregorio Chela, Janeth Chela, Manuel Chela, Pascual Chela, Marcos García, Pedro García, Bolivia Herrera, Emilio Iligama, Carlos Matute, Danilo Matute, Emilio Matute, Neiser Matute, Víctor Matute, Francisco Monar, Luis Vicente Monar, Ignacio Paredes, Javier Paredes, Juan Paredes, Manuel Paredes, Mariano Paredes, Mario Paredes, Miguel Paredes, Irma Uchubanda.
- ▶ Atandagua: Segundo Bayas Chileno, Segundo Bayas Alucho, María Elena Borja, Andres Brito, María Rosa Brito, Vilma Carvajal, Absalón Correa, Angel Chariguamán Angel Chileno, Carlos Aníbal Guerrero, Gumersindo Guerrero, Octavio Guerrero, Armando Espín, Luis Espín, Enrique Llugcha, Nancy Llugcha, Segundo Muyulema, Cesar Ocampo, Elsa Ocampo, Víctor Manuel Ocampo, Natalia Robayo, Iralda Sánchez, Mariana Sánchez, William Segura.
- ▶ Vaquería: Aníbal Agualongo, Manuela Arévalo, Olga Arévalo, Agustina Cubi Arévalo, Melania Chela, Roberto Chela, Manuela Chela Arévalo, Luis Chochos, José Llumiguano, Juan Mullo Tenelema, Patricia Quitio Arévalo, Dora Tenelema, Jorge Tenelema, Juan Tenelema, Miriam Tenelema.

Mashi María Arguello, Félix Culqui shinallatak Mercy Villares, ECAs yachaykunapi yanaparkakuna.

“Papa lanchamanta yachay kamu alli kakta rikushpa” yanapak mashikunaman (Cajamarca, Perú, 29 - 30 punlla, pawkar killa, 2007 watapi rurashka), paykunami kay ñankamuta alli kakta rikurkakuna shinallatak allichinkapak yuyaykunawan yanaparkakuna: Mario Bazán, Carlos Cerna, Julio Cesar León, Víctor Cerna, Ricardo Orrego, Ronal Otiniano, Wilmer Pérez, Guillermo Ramírez, Esau Salazar shinallatak Corali Silva.

“Review of CIP’s Draft Potato Late Blight Training Manual” en el “International Scientific Symposium on Potato” (Pyongyang, República Popular Democrática de Corea, 21 - 25 punllakuna, Sitwa killa, 2007 watapi rurashka) pay mashikunami inglés shimiman alli yallichishka kakta rikurkakuna shinallatak allinkapak yuyaykunawanpish yanparkakuna: Dao Huy Chien, Eri Sofari, Fengyi Wang, Karma Nidup, Jong Chol, Kwon Min, Young-Il Hahm shinallatak Karma Nidup. .

Willy Pradel shinallatak Lorna Sister, paykunami kay ñankamu alli kakta rikunkapak wakin minishtirishkakunata allichirka shinallatak Cajamarca llaktapi rurashka yachay tantanakuyta, Pyongyang llaktapi rurashka tantanakuytapish ñawpakaman aparkakuna.

Carlos Monar, Ricardo Orrego, Willmer Pérez shinallatak Rodrigo Yáñez paykunami kay ñankamuta allinkapak shinallatak ashawan allina yuyaykunawanpish yanaparkakuna.

## Imalla tiyashkata rikuchi

	<i>Panka.</i>
<b>Kamuta rikuchi</b>	6
<b>Kallari rimay</b>	7
• <b>Yachana Kamu 1:</b> Papata imashina lancha japik kashkata shinallatak hongo Fitóftora imashina rikurik kashkatapish riksishunchik	11
• <b>Yachana Kamu 2:</b> Fitóftora imashina kawsak kashkata riksishun	41
• <b>Yachana Kamu 3:</b> Sinchi papakunata tarpushpa lanchamanta jarkarishunchik	57
• <b>Yachana Kamu 4:</b> Papata ama lancha japichun fungicidata churashun churashun.	81
• <b>Yachana Kamu 5:</b> Papa lanchamanta jarkarinkapak ñukanchik chakrakunata rikurayashunchik	115
• <b>Tantachishka 1:</b> Yachashkakunata rikunkapak	129
• <b>Tantachishka 2:</b> Fungicidakupana ñankamu	137

## Kamuta rikuchi

*Phytophthora infestans* (Mont.) de Bary manta shamushka lanchaka tukuy pachapi-mi papata unkuchishpa llakichikun. Ecuador mamallaktapika kay papa unkuytaka lancha shutiwanmi riksinchik chay unkuymi tarpushka papakunata chinkachishpa allpapi tarpuk mashikunamanka mana imata pukushpa llakichin. Centro Internacional de la papa (CIP), División de Manejo Integrado de Cultivos shinallatak Proyecto papa Andinawan tantarishpa; Instituto Nacional Autónomo de Investigaciones Agropecuarias del Ecuador (INIAP), Programa Nacional de Raíces y Tubérculos-rubro Papawan tantarishpa; shinallatak Secretaría Nacional de Ciencia y Tecnología del Ecuador (SENACYT), ayllullaktakunapi llakikunata rikushpa shinallatak imata rurana-tapish mashkashpami kay yachana panka ñankamuta allichishkakuna: “Papa lanchata jarkanata yachankapak ñankamu”

Kay ñankamuta rikukkunaka (paykunami punllanta rikukkuna kan) allpapi llankak mashikunata yachachikkunami kan, paykunamanka *yanapak* shutiwan riksinchik. Ashka kutinpi, yanapakkunaka allpapi llankak mashikuna kan paykunapak makikunawantak rurashpa yachashkakuna. Shinapish, kay ñankamuwanka técnico extensionista mashikunapish yachay tukunkuna ashtawankarin agropecuariomanta yachaya kuk jatun wasipi yachachikkunapish. Kay ñankamumanta yachakrikkunaka (paykunami kay ñankamupi tiyashka yachaykunataka japinkakuna) papata ashalla pukuchikkunami kanka. Shinapish, wakin yachaykunataka agronomía jawa yachakrikkunapish japi tukunkunami.

Kay ñankamutaka rurashkami kan allpapi llankak mashikuna lanchamanta imashina jamutak mana jamuktakta rikushpa. Allpapi llankakkunaka papa lanchata jarkakkuna kachun shuyashpami kay ñankamuka rurashka kan. Jamuktak mana jamuktakta rikushpami yachana kamukunataka allichishka kan, yuyaypipish jawalla japinkapak, rurana-papak jawalla kachun shinallatak tukuy yachaypi jawalla kachun. Chay tukuyta rikushpami paktaykunata churarkanchik imalla yachanamanta rikunkapak, imalla ruraykunata churankapak shinallatak yachashkata rikunkapakpish. Allpapi llankak mashikunapak yachay kashkamantami yanapak mashikunaka sumakta yachachina kan tarpushkakunapi llakikuna tiyakta mishachunkuna.

Shuyanchikmi kay ñankamu maypipish minishtirik kachun shinallatak tukuy pachapi tiyak Centro Internacional de la Papaman kayshuk mashikunapakpish yanapay kashka kachun.

---

## Kallari rimaykuna

---

Kay ñankamuka wiñachishkami yanapak mashikuna papa lancha jawa allpapi llankakkunata jawalla yachachi tukuchun. Pishka yachana kamupimi chawpishka kay ñankamuka. Tukuy yachana kamukunami allpapi llankakkuna papa lancha jawa yachachayachuntak rurashka kan. Kay yachaykunata tukuchishka washaka yachakuk mashikunaka kashnami llukshinkakuna:

- ▶ Riksinkami imashina unkuy rikurik kashkata shinallatak imami chay unkuyta rurakta (Yachana Kamu 1).
- ▶ Riksinkami imashina chay unkuy kawsayta charikta (Yachana Kamu 2).
- ▶ Riksinkami imalla papakunatak lanchapak sinchi mana sinchikunapish (Yachana Kamu 3).
- ▶ Fungicidakunawan papa jampi tukunkami lanchamanta jarkarinkapak (Yachana Kamu 4).
- ▶ Tarpushka papa chakrata rikurayashpa lancha unkuywan mana unkuchun sakinkachu, utkashpami jampikunata churay tukunka.

Kashna shina ushaykunataka 2006 kallari watapimi kay Ecuador mamallaktapi allpapi llankakkuna, yanapakkuna, extesionistakuna shinallatak fitopatológokunapish tantanakushpa yuyarishkakuna. Kipata, ñawpaman rurashka kamukunata japishpami kay ñankamutaka rurashka kan, chay ñawpaman rurashka kamukunaka kay mamallaktapimi rurashka Bolivia<sup>1</sup>, Ecuador<sup>2,3</sup>, Perú<sup>4</sup> shinallatak Salvador<sup>5</sup>. Kipata kay ñankamukunataka alli mana alli kaktapish yanapak mashikunata shinallatak Escuela de de Campo de Agricultorespish (ECAs) yachaykuna kushpami rikushka kan. Kay yachaykunataka 2006 kallari watapi rurarirka kay Ecuador mamallaktapi. Shinallatak Yachana Kamukunataka 2007 watapi, Perú mamallakta, Cajamarca villapi

- 
1. Gandarillas, E., Meneces, P., Thiele, G., y Vallejos, J. (eds.). 2001. Escuela de Campopi yachakuk allpapi llankakkunata yanapay yuyaykuna. Programa de Investigación en Productos Andinos (PROINPA), Cochabamba, Bolivia. 143 p.
  2. Pumisacho, M. y Sherwood, S. (eds.). 2000. Yanapakkuna yachanapak minishtirikuna - Papa tarpushkata imashina rurana. Instituto Nacional Autónomo de Investigaciones Agropecuarias (INIAP), Centro Internacional de la Papa (CIP), Organización de la Naciones Unidas para la Agricultura y la Alimentación (FAO), Instituto Internacional de Reconstrucción Rural (IIRR), Quito, Ecuador. 181 p.3.
  3. Pumisacho, M. y Sherwood, S. (eds.). 2005. Guía metodológica sobre ECAs - Escuelas de campo de agricultores. Instituto Nacional Autónomo de Investigaciones Agropecuarias (INIAP), Centro Internacional de la Papa (CIP), World Neighbors. Quito, Ecuador. 185 pp.
  4. Nelson, R., Palacios, M., Orrego, R., y Ortiz, O. (eds.). 2002. Tarpushkakunawan yachanakunata ruranapak rikuchik - Rikurik papa unkuykunata papa chuspikunata imata ruranamanta - San Miguel, Cajamarca villa, Perú mamallaktapi tukushka shina. Centro Internacional de la Papa (CIP), CARE, Lima, Perú. 264 p.
  5. COSUDE/Zamorano/PROMIPAC 2001.. Escuelas de Campo - Yanapak mashiman rikuchik. Yachay tantanakuypi llukshishka yuyaykuna: "Capacitación de capacitadores en Manejo integrado de Cultivos: la metodología Escuelas de Campo" Morazón Ilakta, El Salvador mamallaktapi wayru shinallatak sasi killakunapi rurarishka, 100 p.



shuk yachay tantanakuyta rurashpapi yanapak mashikunawan rikushkami kan. paktachiska kay Sierra Central del Ecuadorpi 2006 watapi. Yachanakunaka shinallatak japikatishkami kan yanapakkuna shuk yachana rurashkapi Cajamarca, Perú 2007 watapi. Shinallatak, ashtawan allichishka yachana kamukunataka inglés shimi-manpish yallichishkanchik científico mashikunawan alli kakta mana alli kaktapish rikunkapak, kay yachay tantatankuyka Pyongyang (República Popular Democrática de Corea) pimi rurarirka.

Kay ñankamupika achka yuyaykunami tiyan manarak yachay kallarikpimi rikushka kana kan:

- ▶ **Yachanapak rurashka.** Kay ñankamutaka shuktak shuktak yachaykunapi yachashka kay tukun punllanta yachaykuna imapi, ashtawankarin ECAspi shinallatak ashalla yachaykunapipish. Ashka rikuchikkunatami charin yachaykunata yanapankapak (rikuchishpa, rikushpa, yuyarikuna, ruraykuna, rimanakuykuna, rurash yuyayta japikuna shinallatak kashka shina rurashpapi) shinallatak ñawpakman churan allpapi llankakkunapak yachashkakunata chaywan yachaykunata sinchiyachinkapak, chashna yachanakushpami papa lancha jarkarinamanta ashtawan yachashpa llukshishun. Chaymantami, yanapak mashika chashna yachaykunata ñawpakman churakmi kana kan mana paylla yachashka shinachu kana kan.
- ▶ **Allita rikuchin.** Kay ñankamuka lancha ima kakta mana yalliktakka rimakunchu ashawan yachashun nishpaka shuktak killkakunapi shinallatak kamukunapimi shinallatak killkashka uchilla pankakunapipish<sup>6</sup> rikuy tukunchik. Kay ñankamuka lancha papata ama japichun minishtirishka yachaykunallatami rikuchikun.
- ▶ **Shimikuna.** Kay ñankamuta yachankapak ama skinchi shimikuna churankapakka wakin rimaykunataka jamutanalla shimikunapimi killkashka kan. Churashunlla *Phytothora infestans* shimita killkakunkapak rantika *Fitóftora* shutiwan churashka kan killka katinapak shinallatak rimaypapakpish jawalla kachun. Shinallatakmi *micelio* shimipak rantika *pelusilla* shutita churashkanchik chay lancha wiñarichun yanapakkunataka. Chayshinallatak *P. infestans* omomiceto nishkataka hongo shutita churashkanchik hongoman rikchak kashkamanta.
- ▶ **Imalla ministirin kay ñankamukata yachankapak.** Kay ñankamuta yachachikkunaka killkana shinallatak ñawirinatapish yachakmi kan kan. Ashtawanka, papata tarpuk mashikuna kana kan shinallatak yachaykunapipish tantanakushpa yachana munayta charikkuna. Yachakukkunaka killkana ñawirinatapish mana yachakkunapish kay tukunmi.

---

6. Pérez W. shinallatak Forbes, G 2007. Lanchata jarkankapak chikan chikan llankaykuna. Willaykunata yallichik uchilla pankakuna 1 manta 6 kama: 1. ¿lmatak kan lancha?; 2. ¿lmatak kan lanchata jarkankapak chikan chikan llankaykuna?; 3. ¿lmatak kan sinchikay rikchayachiy?; 4. ¿lmatak kan plaguicidakuna?; 5. ¿lmatak kan fungicida?; 6. ¿lmapak bomba de mochilata yaku pakta yallichun allichinarak kan? Centro Internacional de la Papa (CIP). Lima - Perú.

- ▶ **Kay ñankamuta yachachikrikkuna.** Kay ñankamumanta yachachikrikkunaka kamupi nikushkata manarak yachachi kallarikpi paykunarak yachayta chaskina kan. Kay yachaykunaka ishkey mana kashpaka kimsa punllakunatami ruray tukunkuna lancha unkuy ama japichun jarkarikunamanta yachak mashikunawan shinallatak imashina kay kamu rurarishkata yachak mashiwanpish.
- ▶ **Maypi yachachina.** Kay ñankamutaka rikushka shinallatak yachashka kana kan maypi kawsakta rikushpa shinallatak imami tarpukkunata rikushpash, ashtawankarin Ecuador mamallaktamanta kanllaman yachachishun nishpa. Churashunlla Tantachiska 2 fungicidakunapak shutikuna jawa, mana kashpaka shuyukuna, rimaykuna shinallatak rikuchikakunapish rikushkami kana kan kay shukktak mamallaktakunapi kay ñankamumanta yachachinkapakka.
- ▶ **Llika.** Tukuy yachana kamukunapi kashna churashka kan:

1. Manarak tantanakuyta kallariushpa yanapak mashi allichirinapak.

- » Manarak yachay kallarikpi imata minishtinchik
- » Pachakuna
- » Kallari rimaykuna
- » Paktaykuna
- » Yachanata imashina rurashka
- » Yanapak allichirinapak

2. Tantanakuy pachakunapi yachakukkunawan ruranakuna.

- » Ñawpaman yachashka yachana kamuta kutin rikuna
- » Kallarik yachashkata rikuna
- » Yachakkuna imatami shuyan
- » Ruraykuna (Yachana Kamu 1 ruraykunaka tantanakushpa ruranakunami)
  - › Paktaykuna
  - › Minishtirikuna
  - › Imashina rurana
  - › Rikuchi
  - › Yachakukkunaman kunapak panka
- » Tukurik ruraykuna:
  - › Yachanata ashallayachishkakuna
  - › Yachashkata rikuna
  - › Kay kamuta rurakkunaman yanapanpakap
  - › Tapuykuna

**► Mutsuy**

- » Kay ñankamutaka papa lanchata imashina jarkanamanta yachaykunallapimi rikushka kana kan. Asha yachaykuna tiyanmi shuktak murukunapi lanchamanta jarkanapak, tomatemanta rimashpa. Shinapish, chashna ima kashpapish ministirishkashina churashkami kana kan.
- » Yachana Kamu 1 manta 5 kamaka washanmi yachashka kanata charin.
- » ECA yachaykunapika imashinami tarpushkakuna wiñarimukpi yachana kamukunataka yachashpa katinata charinkuna. Mana sinchi muyukunata tarpushka kakpi shinallatak ashka tamyay pachakuna imapika utkami fungicidakunata churashka kana kan manarak Yachana Kamu 4pi yachachikushkata rikushparak. Shina karpika, yachakukkunamanka ninami tukun fungicidakunamantaka kipatami allita riksishun shinapish kay jampikunata churaykunaka ministirinmi lanchata jarkankapak. Yachana 3 pi sinchi muyukunata churanamanta yachachikun chay yachaytaka shuk kutinwan tarpushun nishpaka tikra yachana kan.

## Yachana Kamu 1

**Papata imashina lancha japik  
kashkata shinallatak hongo  
Fitóftora imashina rikurik  
kashkatapish riksishunchik**





# Manarak yachay kallarikpi yanapak kay rikuchikunata riksinata charin

## Manarak yachay kallarikpi imata minishtinchik

Mana imata minishtinchikchu

### Pachakuna

Kay yachanaka ishkaypimi chawpirin, kallarik tanta-nakuyka kimsa pachakuna shinallami kan, katik tanta-nakuyka kanchis punllakunata rurana, kimsa chunka tatakikuna yachaykunata rurana.

### Kallari rimay

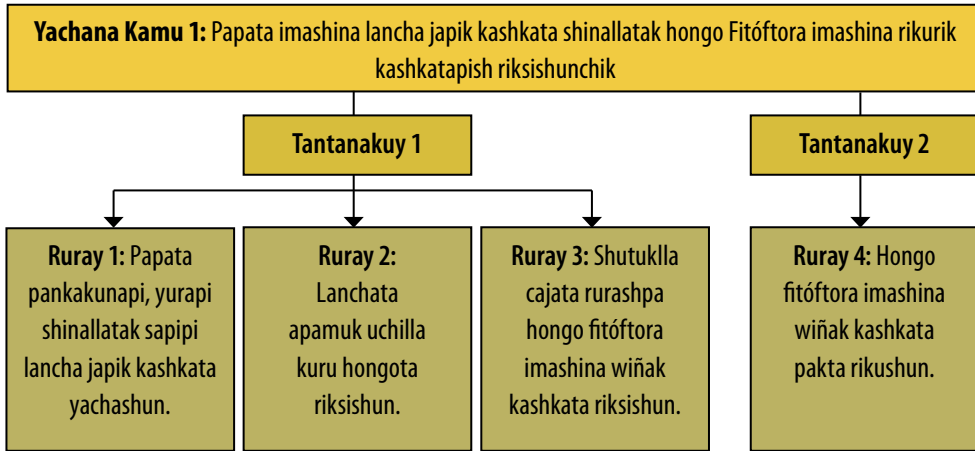
Lanchataka shuktak papa unkuykunami yuyashpa mana utka rikunchiklla chaymantami minishtirin alli riksina imashina chay lancha japik kashkata shinallatak yachana chayka fitóftora nishka hongomanta japik kashkata. Chay hongoka papa yurakunapimi rikurinlla kutakunata churashka laya chaymi ashka llakichik uchilla kurukunaka waranka waranka tukun.

### Paktaykuna

Kay yachay pankata tukuchishka kipaka yachakukkuna kaykunatami ña ruray tukunkuna:

1. Tantanakushka mashikunapak ñawpakpi shayarishpa imashina lancha japik kashkata rikuchinata ushankami chashnallatak shuk rikuchinatapish ninkallami runamanta unkuymanta.
2. Imashina papa pankakunapi, yuyukunapi, papa muyukunapipish chay lancha unkuykuna japik kashkata shinallatak sapikunapi kayshuk unkuykunami yuyashpa mana pantarinkachu.
3. Shuyushpa rikuchinatapish ushankaami lancha ima kashkata shinallatak chayka ima rurak kashkatapish rimankallami.
4. Tantarishka mashikunaman papa pankakunapi chay kuta churashka shina rikurik kurukuna ima nisha nishkata shinallatak imata rurak kashkatapish rikichi tukunkunami

## Yachana Kamuka kashnami allichishka



### Yanapak allichirinapak

1. Allimanta kay killkata rikuna kan.
2. 1, 2, 3 yachayruraypi nishka shina imakunata mashkana kan.
3. Killkashka pankakunapak rikchata llukchina kan, chay rikchakunataka tullpuwan llukchina kay pankakunamanta 20, 21 shinallatak 27 (tukuy yachakukkunami rikcha pankakunata charina kan).
4. Killkashka pankakunapak yurak yanapi llukchishka rikchata charina kan kay pankakunamanta 33, 34 shinallatak 36 (Tukuy yachakukkunami rikcha pankakunata charina kan).
5. Rurasha nishpalla kaytaka rurana. Yachashkata rikuna minishtirishpaka manarak yachaykuna kallarikpi shinallatak yachay tukuchipi yachashkata rikunapak pankakunata allichinami (panka 39 shinallatak tantachishka 1).
6. Rurashpatak yachankapakka pakalla pushtutami mashkana kan (shuyukunata rurankapak, microscopiowan rikunkapak, shutuklla cajakunata rurankapak imapish) shinallatak papata lanchata katichishpa yachay tukun.

# Kunan yachaypika yachakukkunawanka kay llankaykunatami rurana kan

## Tantanakuy 1

Tantanakuy 1 taka yanapak pi kashkata willashpa shinallatak ima jawamanta yachakrishkata willashpami kallarina kan. Kipami kay rikuchishka llankaykunata rurana kan.

### Manarak yachay kallarikpi imata minishtinchiks

#### Kay yachay rikuytaka ruranatakmi.

Yachakukkunamanka kay tapuykunata rurana kan kay rimaykunata kushilla kallarinapak, paykuna yachashkata japinkapak shinallatak chayta rurashpaka mashna yachakkuna kashkata yachankapak.

- ▶ ¿Kikinkunamantaka pitatak uju japishka?
- ▶ ¿Imatak kan unkuy? ¿Imatak kan unkuy rikuri?
- ▶ ¿Mashnakunata papata lancha japishpa llakichishka? ¿Pantarishkankichikchu shuktak unkuymi nishpa?
- ▶ ¿Imallatak rikurin pankakunapi, yuyupi, papa muyupi?
- ▶ ¿Kankunaka imata yuyankichik imamantatak lancha japinka?
- ▶ ¿Imatak kutakunata shina papa pankapi rikurishpa? ¿Chayka imatatak ruran?

Rayawan kak tapuykunata kutichishkakunaka shuk jatun pankapi killkashka kana kan. Kay yachana kamupi yuyaykunata killkashka shina (37 pankapi rikuy) chimpapurashpa rikuna kan yachakukkunapak yachashkakunawanpish chaypimi rikurinka wakin yachaykunaka riksishka shinapish shuk yachaykunaka mushuk kashkata rikuchinami.

**Rurasha nishpallami kay yachay rikuchitaka rurana kan.** Yachakukkuna mashna yachashkata yachankapanka 39 pankapi killkashkata kutichishpami yachana kan chayllatatakmi yachay kamuta ña tukuchishpapis rurana kan. Imashina ruranamantaka tantachishkata 1pi rikuna kan.



**Yachakukkuna imata  
shuyankuna**

Yachakukkuna kay kamumanta imata shuyankunata yachankapakka tapuykunatami rurana kan, churashunlla kay tapuyta ruray tukunkichik ¿kunan punllaka imapak tantanakushkanchik?

Kipami yachakuk mashikunaka kay kamupi imata kachakrishkataka yachak chayana kan, jatun pankakunapi killkashpa rikuchi tukunkichik.

1 shinallatak 2 tantanakuyta rurankapakka mashna pachakuna minishtirishkatarak rikuna kan. Chashnallatak achiktami sakina kan ima jawa mana rimakrishkata, churashunlla:

- ▶ Papapak shuktak unkuykuna.
- ▶ Papaman ama lancha japichun jarkaykuna.

## Yachayruray 1. Papata pankakunapi, yurapi shinallatak muyupipish lanchata japik kashkata yachashun

- Paktaykuna** Kay rurayta rurashka washa yachakuk mashikunaka kayta rurankapak yachashka sakirinkakuna:
1. Tantanakushka mashikunapak ñawpakpi shayarishpa imashina lancha japik kashkata rikuchinata ushankami chashnallatak shuk rikuchinatapish ninkallami runapak unkuymanta.
  2. Imashina papa pankakunapi, yuyukunapi, papa muyukunapipish chay lancha unkuykuna japik kashkata shinallatak sapikunapi kayshuk unkuykunami yuyashpa mana pantarinkachu.

- Minishtirinmi** Kunanlla papata lancha japikukta shinallatak papa shuktak unkuymanta kaktapish charina (Mirachishka yuyay 1).
- ▶ Charishpaka sapan yachakukkunami lupata charinakan.
  - ▶ Shuyunkapak imakuna: killkana pankakuna shinallatak shuyuna killkana kaspikuna.
  - ▶ Shuyushpa mishanakuypak kunpitaytapish charinami.

- Imashina rurana**
1. Imamanta kay rurayta rurakrishkata yachakukkunaman willanami.
  2. Chusku mana karpika pichka mashikuna pura tantachinami.
  3. Yachakuk mashikunaman muestrakunata, lupa shinallatak imalla minishtirishkata kunami.
  4. Yachakuk mashikunata mañanami muestrakuna akllachun papa ima unkuymanta kaktapish rikushpa amamanta chashna akllashkata willanami. Minishtirishpatakarin amamanta chashna unkuymanta japik kashkata willanata charinkuna.
  5. Yachakukkuna papa lanchata shinallatak yurak kutakunata shina papa pankakunapi kak kurukunata rikuy tukuchun yanapanami.

6. Tukuykuna tantanakushpa parlanakuna kan imatak kan unkuy rikuri, imamantatak papaman lancha japin pankakunapi, yuyupi shinallatak muyupipish.
7. Yachakuk mashikunaman mañanami papa lancha imashina rikurikta shuyuchun, kunpitay tiyanmi nishpa willana kan kay yachay 2 rurashkamanta.
8. 20, 21 pankakunapi killkashkakunapak rikchata llukchishpa yachakuk mashikunamanka kuna chay killkakunata kipa punllakunapi ñawirishpa ashi-tawan achiklla yachaykuna kachun.

**Mirachishka yuyay 1**

Papa tarpushkata mana charishpa imaka maypi papa chakra tiyashkapii rikunaman rina kan yachakukkuna papa lanchakunata tantashpa apamuchunkuna. Manatak chakra tiyapkika yanapakmi maymanta kakpipish rukuchita apamuna kan llankayta rurankapak. Chay rikuchitaka tutamantakunatami tantana kan sumak waylla pankakuna kachun. Ama chakirichunka refrigeradorapimi plastiku fundakunapi churashpa wakichina kan.



## Yuyachikuna

Kaytaka yanapakmi yachana

Tizón tardíoka papata japik shuk unkuymi kan chay unkuyma shuk uchilla kurukuna shina pankakunata, yuyuta shinallatak papapak muyutapish llakichinmi, chay unkuyma papa lancha shutiwanmi tukuykuna riksinchik.

### Uchilla kurukuna

Uchilla kurukunaka kawsayta charikkuna kan shinapish mana jawalla rikuypak (Mirachishka yuyay 2 rikuy).

- ▶ Wakin kurukunaka runaman yanapakkuna tiyan. Churashunlla allpapi kawsak kurukunaka wanuta ismuchinkuna.
- ▶ Shinallatak tiyanmi uchilla kurukuna unkuymakunata kuk kurukuna. Churashunlla papa lancha, runaman gripeta kuk kurukuna, mana kashpaka warmi wakrapa ñuñupi japik mastitis nishkata kuk kurukuna imapish.

### Unkuy

Runata kashpa, wiwata kashpa, ima shuktak kawsayta charikta kashpa imapish unkuymakunaka chayanmi shuk uchilla mana rikuypak kurukunawan shinallatak shuktak shinapish japi tukunmi:

- ▶ Uchilla kurukunawan japishka unkuymakunaka kanmi papa lancha, runaman gripeta kuk kurukuna, mana kashpaka warmi wakrapa ñuñupi japik mastitis nishka imapish.
- ▶ Shutak shina japik unkuymakunaka kanmi papapi papapi nitrógeno illaymanta, mana alli mikuyta runa mikukpi wiksa kachari, wiwakunapi millma urmay minerales illaymanta.

### Unkuyma rikuchik

Kawsayta charikkunaka ima nanaytapish rikuchin. Papa yuramanta rimakpika yanayashpa rikurin lancha japishka kashpaka, runamanka gripe charishpaka umata nanan, warmi wakrakunapikka ñuñumanta razutiklla shukllin ñuñu unkushka kashpaka.

### Mirachishka yuyay 2

Kay yuyachi alli Kankan karka unkuy ima kashkata ashtawan riksinchikapak shinapish mana yalli minishtirishkachu kan unkuyma ashtawan yachana.



## Papa imata rikuchin lancha japikukpi

Kay pankataka yachakukkunaman kuna kan

### ¿Imatak unkuy rikuchika?

Kawsayta charikkunaka unkuywan kashpaka imalaya-pish rikuchinmi. Nishunlla papa yuraka yana manchata rikuchin lancha japishka kashpaka.

**Pankakunapi unkuy rikuri:** yana manchakuna shina muyurishka rikurin. Wakinpika chay yanayashpaka muyuntipika asha killuwan wayllawan rikurin.



**Yurapi unkuy rikuri:** yana shinaman chakishka manchakuna rikurin. Yuraka chay yanayashkapi uturi tukunmi.



**Muyupi unkuy rikuri:** Papa muyupi yana shinaman manchakuna rikurin, ismukuk shina kan. Papata chawpishpa rikupika chakishka manchakuna shina yanalla rikurin. Papa muyu lanchawan kashpaka mana imata ashnachin.



Papa chakra lanchawan kashpaka ismuska pankaman ashnachin.



## Papa lanchawan kashpa ama shukta unkuykunawan pantarishun

Kay pankataka yachakukkunaman kuna kan

Papata **kasa** japishka kashpaka pankakunaka asha yanayashka chakishka shinallatak pakirikuk rikurin ashtawan yallika jawaman kak pankakunapi.



Papa **lanchaka** muyurishkapi yanawan killuwan rikurin. Chay unkuywan kak pankaka killuyari tukunmi.



**Fomosis** nishka unkuyka rikuchinmi uchilla manchakunata shinami paykunapura tantari tukunmi pankata ashawan yanayachinkapak.



Septoriosis nishkaka uchilla manchakuna ashawan uchilla yana puntukunata rikuchin. Chay manchakunapak muyuntipika killuyashka rikuri tuyunmi.



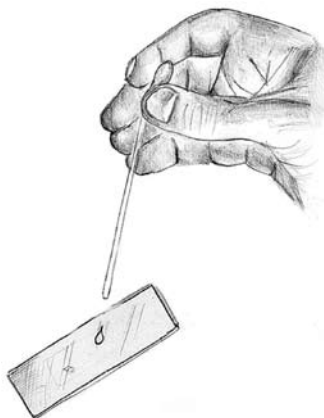
Foto: CIP

## Yachayruray 2. Papa lanchata kuk hongo kuruta riksishun

- Paktaykuna** Kay yachayta tukuchishpaka yachakuk mashikunaka ruray tukunkakunami:
1. Shuyushpa rikuchinkakunami imami papaman lanchata kuk kashkata shinallatak willankami imashina papa lanchawan kakta yachanamantapish.
  2. Fitóftora uchilla kurukuna ima kashkata shinallatak imata rurakkuna kashkatapish willay tukunkakunallami tantarishka mashikunapak ñawpakpi.

- Minishtirinmi**
- ▶ Shuklla microscopio imapish (Mirachishka yuyaykuna 3).
  - ▶ Microscopiopa vidriomanta placakuna (shuk placa sapan microscopiopa minishtirinmi).
  - ▶ Cinta adhesiva transparente.
  - ▶ Yaku.
  - ▶ Algodón, goma shinallatak kutatapish minishtinchikmi espora fitóftorakunata rikuchinkpak.

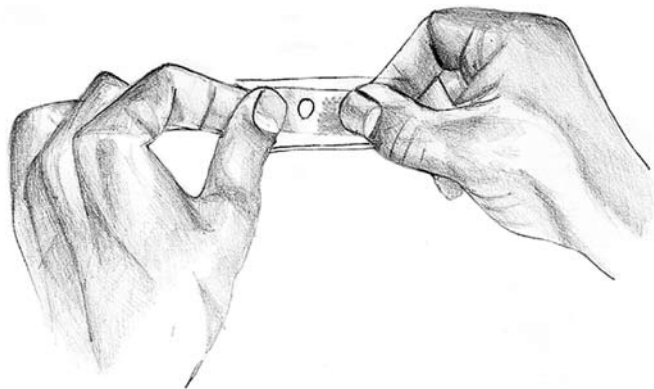
- Ima shina rurana**
1. Yachakuk mashikunaman willana kay ruraywan imatami shuyanchik.
  2. Ñawpa punllakunapi tantarik mashikunallatak tantarinata charinkuna paykunaman imalla minishtirishkata kuna kan.
  3. Esporas ima kashkata yachankapak shuk rikuchita rurana kan kashna rurashpa:
    - ▶ Vidrio placa jawapi shuk gota yakuta churana.



- ▶ Asha cinta adhesivata pitina shinallatak allimantalla papa pankapi kutakuna shina tiyakuk jawapi cinta adhesivawan chay kutakuna shinata citapi pigachina.

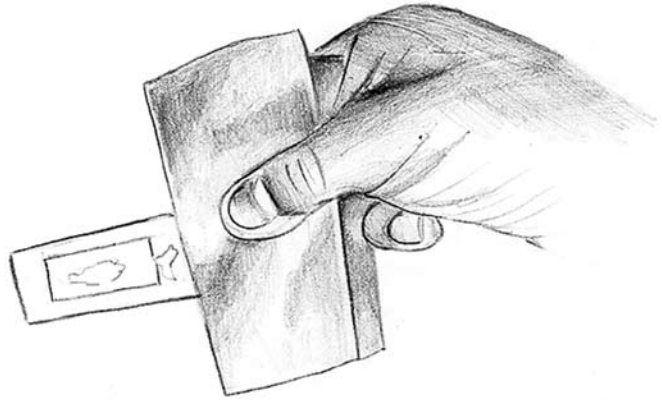


- ▶ Vidriopi shuk gota yaku churashka jawapi cintata churana. Mana yalli aysana.





- ▶ Yalli yaku karpika papel higiénicowan chakichina.



- ▶ Microscopiowan rikuna.



4. Esporaskunata shinallatak esporakunata charikuk pushkakunatapish yachakuk mashikunaka rikuna kan.
5. Yachakuk mashikunata shuyuchina esporakunata shinallatak esporakunata charikuk pushkakunatapish. Kaytaka rurachinami Yachayruray 1pi imashina unkuykuna rikurik shuyushka pankapi.
6. Yachakuk mashikunata mañana lanchapa kutakuna shina paykunapak shuyushkakunapi gomawan shinallatak algodónwanpish rikuchichun. Kutawanka esporakunata rikuchi tukunkuna.
7. Yachakukunatak mañana ashtawan alli shuyushkata akllachunkuna, chay sumak shuyuta rurak mashita kunpitayta kuna.
8. Kay ruraykunata rurashka washa tukuykuna tantanakushpa rimanakuna imamantatak lancha papata japik kashka, imashina yachay tukunchik shinallatak espota fitóftora ima kashka shinallatak imata rurak kashkatapish. Rimanakushka washaka paykunalawantak ima kashkata tukuykuna yachanakushpa sakirina kan.
9. Panka 27ta rikchata llukchishpa tukuy yachakukunaman kuna kan kay yachaypi yachashkata ama kunkarichunkuna.

### Mirachishka yuyay 3

Laboratorio microscopiowan mana kashpaka laboratorio de campowanpish rikuy tukunkunalla. Laboratorio de campota rantishun nikpika kay willachita rikushpa yachay tukunkichik: <http://www.gemplers.com/pestmgmt/magnification/lightedmagnifiers/78015.html>. 40 dólar kullkikunami kay tukun shuk microscopio de campota rantishun nikpika.



## Yuyachikuna

### Kaytaka yanapakmi yachana kan

#### Hongo

Shuk kawsak kurumi hongoka chay kurukunaka esporakunata chari tukun shinallatak paypak aychaka uchilla pushkakunawan pillushka kanka.

- ▶ Wakin hongo kurukunataka jawalla rikuy tukunchikllami. Churashunlla paraguakuna shina hongokuna shutuklla shinallatak amsalla allpakunapi wiñak hongokunata.
- ▶ Shuktak hongo kurukunataka mana jawalla rikuy tukunchiklla chaykuna ashtawan iñu kurukuna shina kan ashtawan riksi tukunchikmi microbio shutiwan. Kay hongo kurukunata rikuy tukunkapakka microscopio minishtirinmi (microscopioka kanmi yalli uchilla kurukunata rikunkapak).
- ▶ Wakin hongo kurukuna ñukanchikta yanapakkuna kanmi. Churashunlla runapak wiwapak achka jampikuna hongo kurukunawan rurashkakuna kan.
- ▶ Shuktak hongo kurukuna unkuykunatapish kukkuna kan. Churashunlla papata lanchata kuk hongo shinallatak wakin nanaykunata runaman kuk shinallatak wakin unkuykunatapish wiwakunaman kuk imapish.

#### Esporakuna

Paykunapak aychaka yalli uchillakuna kan, paykuna hongokunata mirachikkuna kan. Microscopiowan rikuy tukunchik.

#### Fitóftora

Papa lanchata kuk hongomi kan chay Fitóftora kuruka, chay Fitóftoramantami lanchaka papata japin.

#### Signo

Kay rimaywanka microbio uchilla kurukuna tarpushkakunata llakichik kurukunata riksinchik. Kay kurukunataka mana jawalla rikuy tukunchikchu shinapish waranka waranka tantarishka kashpaka rikuy tukunchikllami (Mirachishka yuyay 4).

#### Fitóftora imashina rikurin

Yurak kutawan shinallatak pushkawan shina pankakunapi muyurishka rikurin shinallatak tamyalla tuta mana yalli chiri pakarikipika yurakunapipish rikuri tukunmi. Chay kuruka waranka waranka esporakunawan pushkakunapi pillurishka shina kan.

- ▶ Yurak kuta pushkawan shina pelusilla kakpika papa lancha kanka chashnami shuktak unkuykunawan mana pantari tukunchik.
- ▶ Fitóftorakunamanta esporakunaka limónkuna shina kan.

#### Mirachishka yuyay 4

Signo rimayka wakin yachakuk mashikunaka pantari tukunmi chaypak rantika "pelusilla", "algondocilla", "lanilla" shutiwan yachachi tukunchik.



## Hongo Fitóftoramantami papa lanchaka japin

Kay pankataka yachakukkunamanmi kuna kan

- Shutuklla punlla karpika rikurinmi papa panka washapi uchilla kuta butunkuna shina.
- Chaymi uchilla kurukuna kutapi pillurishka shina, shinallatak ashka pushkakunawan charirishka.
- Pelusillawan karpika papa lanchami kan chay rikuripika mana shuktak unkyukunawan pantari tukunchik.



- Microscopiowan pelusillata rikupika espora Fitóftorata rikuy tukunchik ñañuk pushkakunawan charirikuk shina.
- Esporakunaka Fitóftorata mirachikkuna kan.
- Fitóftoramanta esporakunaka limónkuna shina kan.



## Yachayruray 3. Hongo Fitóftorata rurashun (Shutuk cajata rurashun)

**Paytaykuna** Kay yachayta tukuchishka washaka yachakuk mashikunaka ruray tukunkakunami shutuk cajata, chay caja imapak kashkata yachanka shinallatak alli mana alli kashkatapish rikuy tukunkami ñawpa Yachayruray 2pi yachashkata mirachishpa (imamanta papa lancha japin, chay unkuuya imashina riksi tukunchik, espora ima kashkata shinallatak imapak kashkata).

### Minishtirishkakun

- ▶ Papa pankakunata kunanlla achka lancha japikukta shinallatak chay pankaka charinami kan pelusillatapish.
- ▶ Mana kimiku jayak jampi churashka papa pankakuna.
- ▶ Shutuk cajata rurankapak:
  - » Tukuy yachakukkunapak shuk shuk:
    - › Ishkay achik plástico vasokuna tapakunantik.
    - › Ishkay shinapaklla plástico vasokuna.
    - › Mondadientes.
    - › Shuk plástico kuchara.
    - › Ishkay tijerakunas.
    - › Chuyaklla alli uchilla kaspikuna.
  - » Tukuykunapak:
    - › Lejía (cloro).
    - › Timpushka yaku.
    - › Papel higiénico.

### Imashina rurana

1. Yachakuk mashikunaman willana kay ruraywan imatami shuyanchik.
2. Shutuk caja ima kashkata shinallatak imapak kashkatapish willana.
3. Kay ruraytaka shuk shuk runana kan. Minishtirishkakunatapish tukuykunaman kuna kan.

4. Panka 33 ta rikcha llukchishpa tukuy yachakukkunaman kuna. Shutuk cajata imashina ruranata rikuchina.
5. Sapan yachakukkunaman mañana ishki shutuk cajakunata rurachun. Sapan shutuk cajapi kimsa mana kashpaka chusku alli papa pankata uri sinkaman churana.
6. Punta rurashka shutuk cajapika tawka gota yakuta uri singa churashka panka jawapi churana, chayta rurana kanchik mondadienteswan.



7. Cajata tapashpa killkana kanchik "Yaku" killkata.



8. Shuk rikuchita rurana kanchik pelusillata mayllankapak, mayllashka washaka esporakuna tukuchun:
- ▶ 10 mana kashpaka 15 lanchawan kak pankakunata japishpa pitina kanchik pelusillawan kakta. Chay pitishka pankakunatami plástico vasopi churana ashalla yakuwan churashka pankakunata tapachunllami yakutaka churana.



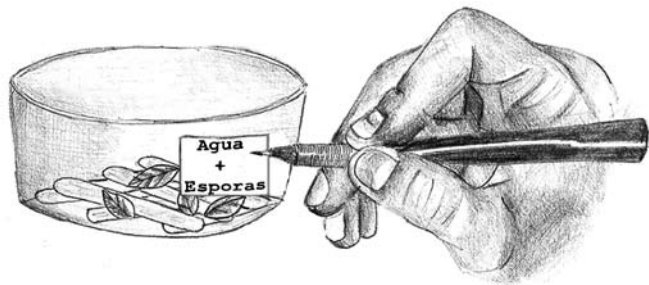
- ▶ Pankakunata jawina mondienteswan.



9. Shuktak shutuk cajapika Fitoforamanta esporakunawan tantachina:
- ▶ Chay tantachiishkatami tawka gotakunataka uri singa pankapi churana mondadientekunawan allimanta japishpa (Mirachiska yuyay 5).



- ▶ Cajata tapashpa “Yaku esporakunawan” killkata churana”.



- ▶ Yachakukkunata nina kanchik esporakunata rurashka vasotaka jupapi shitachun. (Mirachishka yuyay 6).



10. Yachakukkunata mañana kanchik cajakunataka kunukllapi inti shitakunpi churachunkuna (churay tukunkunami wasi ventanapi) shinallatak 2-3 punllakunapi asha yakutapish churachun ninami shutuklla kachun.
11. Llankashka pankata juntachichun yachakuk mashikunata mañana kanchik (Panka 34) (Mirachishka yuyay 7).
12. Yachana kamupi killkashkta rikushpa katina (Panka 37) shinallatak 7 punllakunatamio shuyana kan shutuk cajakunapi papa lancha rikurichunkama.

- Mirachishka yuyay 5** Tantachi tukunchik panka washapi chashnami ashtawan jawalla lancha papa pankakunataka papi tukun.
- Mirachishka yuyay 6** Esperakunaka unkuchi tukunmi alli papakunata. Ama unkuchichunka amarak vasota jupapi shitashpa asha lejía yakuta churana kanchik.
- Mirachishka yuyay 7** Mayjan yachakuk mana killkanata yachapika shuktak mashitami mañana llankashka pankata juntachishpa kumpitachun.



## Hongo Fitóftorata rurashun

Kay pankataka yachakukkunaman kuna kan

### ¿Imatak shutuk caja?

Achiklla cajami kan shutuk cajaza chay ukupika hongo fitóftorata wiñachi tukunchik papa pankakunata churashpa. Chayta rikushpami ashawan yachashun imashina papa pankakunata lancha japi kashkata.

### Imashinatak shutuk cajata rurashun

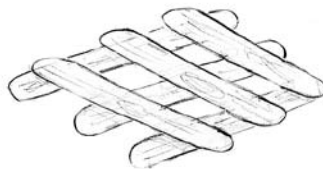
- ▶ Shuk vaso yakupi ishkay kuchara clorota churana.
- ▶ Ashka uchilla kaspikunata vaso ukupi shuk tatkitata churana.
- ▶ Kaspikunata llukchina, mayllana chuyaklla yakuwan.
- ▶ Chay cloro churashka vasotaka basuraman shitana.
- ▶ Caja húmedata rurana kashna shina:



← Tapa



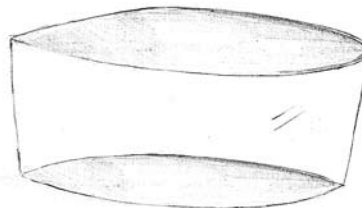
← Mana jayak kimikunata charik papa pankakuna



← Uchilla kaspikuna



← Yakupi shutuchishka papel higiénico



← Achiklla plastico vaso



## ¿Imata rikunchik shutuk cajakunapika?

Yachakukpak shuti: \_\_\_\_\_

Cajapak shuti: \_\_\_\_\_

Punlla	Punlla/Killa/wata	¿Imata rikunchik?
1		
2		
3		
4		
5		
6		
7		

## Tantanakuy 2 (kanchis punllakuna washa)

### Yachayruray 3. Hongo Fitóftorata rurashun (alli mana allitapish shutuk cajata rikuna)

- Paktaykuna** Yachakukkunaka kay rurayta tukuchishpaka shutuk cajanishkata katirashpa rikuy tukukakunami.
- Minishtirishkakuna** Lupakuna, tiyapkika tukuykunapakmi tiyana kan.
- ▶ Shukllapish microscopio.
  - ▶ Microscopiopak placa vidriokuna (tukuy microscopiokunapak).
  - ▶ Achiklla cinta adhesiva.
  - ▶ Yaku.
- Imashina rurana**
1. Yachakukkunata willana imatami kay ruraywan shuyashkata.
  2. Ñawpa llankaykuna paktashka mana paktashkata willachun mayjanpish rimachun mañanami. Shutuk caja “Esporas” killkashka cajapika shuyanchik papa lanchawan kachun, “Yaku” killkashka cajapika lancha illak kachun. Parlanakuy kallarichunka kay tapuykunata ruray tukunchik:
    - ▶ ¿Imamantatak shuk cajapika lanchawan kanka shinallatak shuktakpika lancha illak kanka?
    - ▶ ¿Fitóftoramanta esporakunaka imatak rurankuna?
    - ▶ ¿Shutuk cajaka imatak rurana? (Mirachishka yuyay 8).
  3. Yachakukkunata mañanami lupakunawan paykunapak shutuk cajakunata rikuchunkuna unkuymashina rikurikukta shinallatak Fitóftoramanta pelusillatapish.
  4. Esporakunata microscopiowan rikuna (Mirachishka yuyay 2).
  5. Tukuykuna tantanakushkapi kay yachaypi rimashkunata parlanakuna shinallatak paykunallawantak yuyarina imashina lanchajapik kashkata, imashina chay unkuyma riksinamanta, shinallatak fitóftoramanta esporakunapish ima kashkata shinallatak imata rurak kashkatapish.
  6. Panka 36 manta rikchata llukchishpa tukuy yachakukkunaman kuna imalla yachashkakunata ama kunkari-chunkuna.
- Mirachishka yuyay 8** Kay yachaytaka ishki niki yachana kamupimi rikushun. Shinapish willay tukunchikmi achka nuyu minishtirishkata Fitóftora wiñashpa papata lanchajapichun.



## ¿Shutuk cajawanka imata yachanchik?

**Kay pankataka yachakukkunaman kuna kan**

Hongo Fitóftora papataka lanchata kuk kashka chaytami shutuk cajakunata rurashpaka yacharkanchik. Kay hongoka esporakunata charin unkuy mirachun, shuk unkushka papamanta alli papaman lancha yallichun.

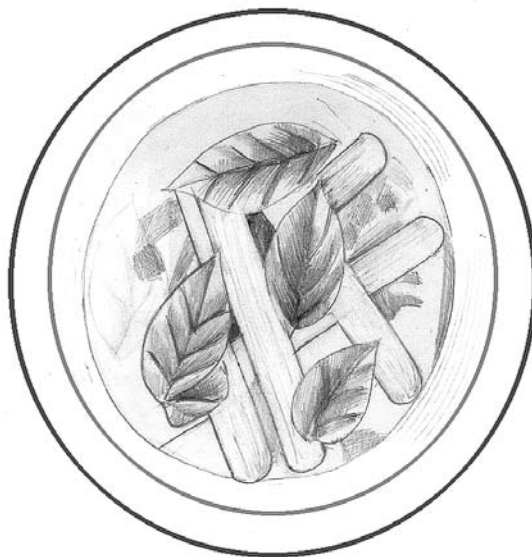
**Kay cajapi tiyakuk pankakunapika lancha yaykushkami. Chay tukuchunka kaytami rurarkanchik:**

1. Lanchawan unkushka pankakunapak pelusillatami yakuwan mayllarkanchik Fitóftoramanta esporakunata japinkapak.
2. Chay esporakunatami alli papa panka jawapi churarkanchik.
3. Esporakuna pankakunaman yaykushpami papa pankakunataka lancha japirkan.



**Kay shutuk cajapi tiyakuk papa pankakunapika mana lancha tiyanchu. Kaytami rurarkanchik:**

1. Alli pankakunapak jawapimi chuya yakuta churarkanchik.
2. Chay yakuka mana esporakunata charirkachu chaymantami alli pankakunataka mana lancha japirkachu.



## Tukuchinkapak llankaykuna

### Kay kamupi imalla yachashkakuna

Paktaykunaman chayankapakka tantanakuy 1 tukuchishpa kay kamupi imalla yachashkakunata tikra yuyarishun, kay yachaykunami karka:

- ▶ Imashina unkuy rikurik kashkamanta.
- ▶ Papa lancha imashina rikurik kashka.
- ▶ Imamantatak lancha japik kashka shinallatak imashina chay unkuyma riksi tukunchik shuk papa yurapi.
- ▶ Fitóftora ima kashka shinallatak imata rurak kashkatapish.

Kayta rurankapakka yachakukkunaman rikchata llukchishka kushka pankakunawan rimay tukunchik. Kay pachapika rikuna kanchik kay yachay kamuta manarak yachay kallarithpa imatami yachakuk mashikunaka wakin tapuykunata kutichishkakuna, chimpapurashpa rikunkapak kay kamuta ña tukuchikukpi ashawan yachashka mana yachashkata rikunkapak. Shinallatak rikuy tukunchik yanapak mashi killkashkakuna tantanakuykunapi rimarishkakunatapish.

Tantanakuy 2 tukuchishka washa tikra yuyari tukunchik imalla yachashkakunata shutuk cajakunata rurashka washa. Yachakukkunaka achik sakirina kan Fitóftoraman ta esporakunawan papa lancha japik kashkata yachaspa.

### Tukuchinkapak yachayta rikuy

**Kay yachayta rikuytaka ruranatakmi:** Yachaykuna paktashkatak rikunapakka chay pacha tawka yachakukkunata kay llankaykunata rurachun mañana kanchik:

1. Tukuykunapak ñawpakpi síntoma ima kashkata rimachun shinallatak shuk rikuchita churachun runapak unkuy síntoma jawa.
2. Papa lancha imashina rikurin pankakunapi, yuyupi, muyupipish shinallatak imashina mana shuktak unkuymakunawan pantarinamantapish rimachun.
3. Shuyushpa rikuchina imashina lancha rikurik kashkata, pitik unkuchik kashkata shinallatak imashina papa yurapi riksi tukunchik jawa rimachun.

4. Tukuykunapak ñawpakpi fitóftoramanta esporakuna ima kashkata shinallatak imata rurak kashkatapish willachun mañanami.

**Rurasha nishpallami kay yachayta rikuchitaka rurana.** Yachashkata ashtawan rikusha nishpami kay tapuykunata kutichichun mañana kanchik, kay tapuykunaka Panka 39pi killkashka tiyakun, imashina ruranataka Tantachishka 1pimi willakun. Chay tapuykunata kutichishka pachallatakmi alli kutichishkata rikunachina kan shinallatak yachakukkunawan parlanakuyta rurana

**Kay kamuta rurakkunaman yanapankapak**

- Kay yachay kamu imashina rikurishka jawa yachakukkunata kay tapuykunata rurana kanchik:
- ▶ ¿Papa lancha imashina rikurik kashkata yachankapakka minishtirirkachun shuyushpa rikuchina?
  - ▶ ¿Lupakuna shinallatak microscopio yanaparkachu yachaykunapi?
  - ▶ ¿Fitóftoramanta esporakuna papata lancha japik kashkata yachankapak allichu karka shutuk cajakunata rurana?
  - ▶ ¿Ima llakikunataatak charirkanchik?
  - ▶ ¿Yachankapak rurankapakpish pachakunata paktachu karka?

## TAPUYKUNA

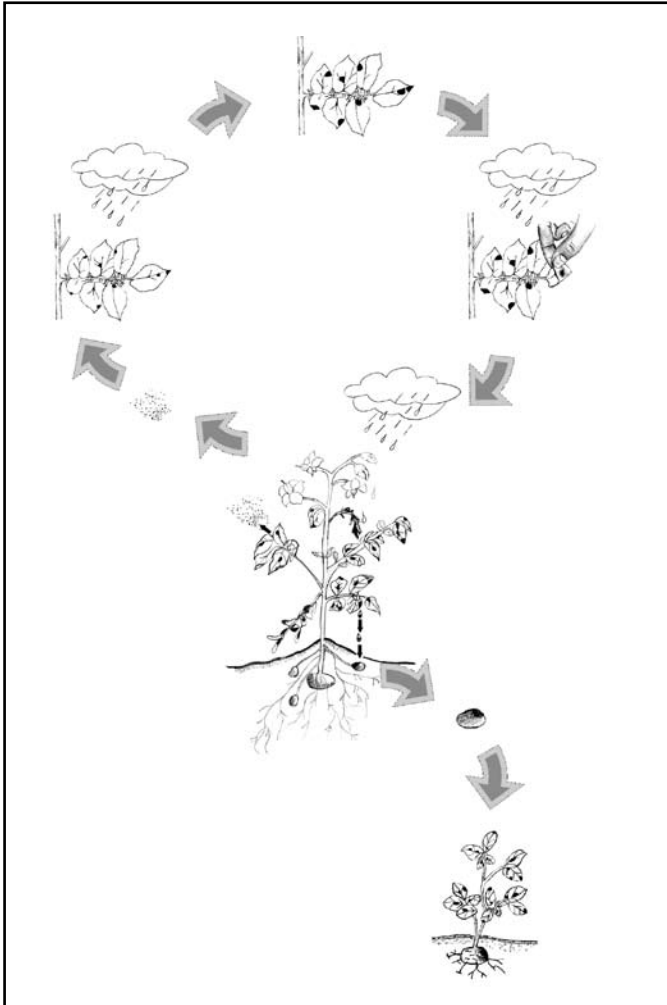
1. ¿Imatak kan shuk síntoma?
  - (a) Unkuyta rikuchikmi kan
  - (b) Unkuyta kukmi kan
  - (c) Mana yachani
  
2. ¿Imashinatak shuk gripewan kashkata rikuchin?
  - (a) Chiri shinallatak virus
  - (b) Uma nanay shinallatak uku rupay
  - (c) Mana yachani
  
3. ¿Papa pankaka imashinata rikuchin lanchawan kakta?
  - (a) Yanayashka manchakuna
  - (b) Chakishka pankakuna
  - (c) Mana yachani
  
4. ¿Papa muyuka imashinatak rikuchin lanchawan kakta?
  - (a) Yakuyashka manchakunawan shinallatak jayak ashnarikuk
  - (b) Ashalla yana chakishka
  - (c) Mana yachani
  
5. ¿Papa pankapika imashinatak lancha kashkata yachashun?
  - (a) Muyuntkipi pelusilla tiyarishka manchakuna rikurin
  - (b) Pankakuna chakirin
  - (c) Mana yachani
  
6. ¿Imatak pelusilla kutakunata shina pankka washakunapi rikurik papa lanchawan kakpi?
  - (a) Papata ama lancha japichun jarkakmi kan
  - (b) Hongomanta waranka waranka esporakuna kan chaykunami lanchata kun
  - (c) Mana yachani
  
7. ¿Espora imatak shinallatak imapak kan?
  - (a) Hongomanta llukshishka kan, payka mirankapakmi kan
  - (b) Yuramantami kan chayka ama unkuykuna japichun jarkakmi kan
  - (c) Mana yachani
  
8. ¿Imamantatak papata lancha japin?
  - (a) Tamyamanta
  - (b) Hongo fitóftoramanta
  - (c) Mana yachani

**Alli kutichishkakunata rikuchik** 1 a; 2 b; 3 a; 4 b; 5 a; 6 b; 7 a; 8 b



## Yachana Kamu 2

# Fitóftora imashina kawsakta riksishun





# Manarak yachay kallarikpi yanapak kay rikuchikunata riksinata charin

## Manarak yachay kallarikpi imata minishtinchik

Yachana Kamu 1 yachashka kana kan

### Pachakuna

Ishki pachakunapimi shuk tantanakuyta rurana kan. Kay yachaytaka Tantanakuy 2 Yachana Kamu 1 tukuchikpika ruranallami.

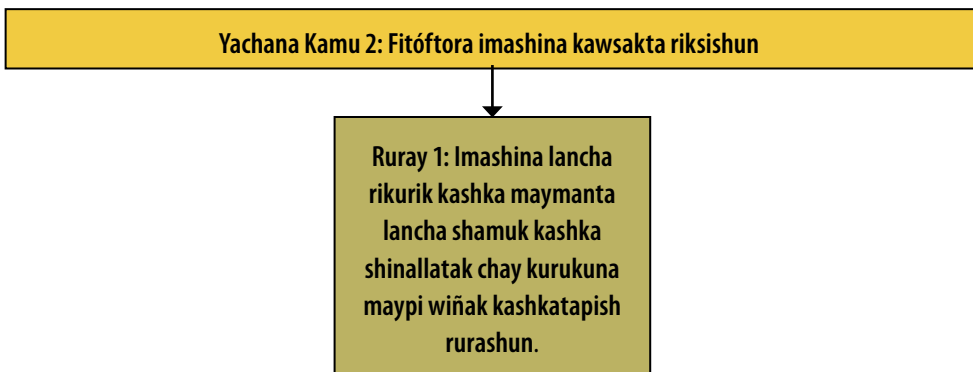
### Kallari rimay

Papata ama lancha japichunka imashina lancha rikurik kashkata, maymanta lancha shamuk kashkata yachana kanchik shinallatak chay kurukuna maypi wiñak kashkata yachana kanchik. Kay yachaykunamantami kay kamupika rimashun.

### Paktaykuna

Kay kamuta tukuchishka washaka yachakukkunaka shuyushpa rikuchi tukunkakuna imashina lancha rikurik kashkata, maymanta lancha shamuk kashkata shinallatak chay kurukuna maypi wiñak kashkatapish.

Yachana Kamuka kashnami allichishka



**Yanapak mashi  
allichirinapak**

1. Allimanta kay killkata rikuna kan.
2. Yachayruray 1pi willakushka shina imalla minishtirishkata charina kanchik.
3. Panka 53 rikchata llukchina kan (tukuy yachakukkunami rikcha pankakunata charina kan).
4. Rurasha nishpalla kaytaka rurana. Yachashkata rikuna minishtirishpaka manarak yachaykuna kallarikpi shinallatak yachay tukuchipi yachashkata rikunapak pankakunata allichinami (panka 55 shinallatak Tantachishka 1).
5. Yachayruray 1 pi imashina rurashkata tikra rikuna. Imashina lancha rikurik kashkata, maymanta lancha shamuk kashkata shinallatak chay kurukuna maypi wiñak kashkamantapish alli yachana kanchik.
6. Rurashpatak yachankapakka pakalla pushtutami mashkana kan (imashina lancha rikurik kashkata shuyunkapak) shinallatak ushshpa imamarin papa chakra lanchawan kakta charina kanchik.

## Kunan tantanakuypika kay llankaykunatami yachakukkunawanka rurashun

### Ñawpa yachana kamupi yachashkakuna

Kay tantakuytaka yanapak pi kashkata willashpa shinallatak ima jawamanta yachakrishkata willashpami kallarina kan. Kipami kay rimaykuna jawa tukuykuna rimanakuna kanchik:

- ▶ Ima nisha nin síntoma.
- ▶ Papa pankakuna, yuyo shinallatak muyu imashinatak lanchawan kashkata rikuchin
- ▶ Pimanta lancha japin.
- ▶ Fitóftoramanta esporakuna ima nisha nishka shinallatak imatatak rurankuna.

Kay rimanakuypakka Yachana kamuu 1 kay yachaykuna jawa killkakunamanta rikchata kushka killkata rikuy tukunchik.

### Kallarinkapak yachashkakunata rikuchi

Kay yachayta rikuytaka ruranatakmi. Yachakukkunamanka kay tapuykunami rurana kan kay rimaykunata kushilla kallarinkapak, paykuna yachashkata japinkapak shinallatak chayta rurashpaka mashna yachak kashkata yachankapak.

- ▶ ¿Fitóftora maypi kawsan?
- ▶ ¿Imashinatak mirankuna? ¿Lanchaka imashinatak wiñan? (Mirachishka yuyay 1).
- ▶ ¿Fitóftoraka maypitak kawsanata munan? (Mirachishka yuyay 2).
- ▶ ¿Tamya shinallatak kunuk pachaka imashinatak yanapankuna lancha wiñachunka?

Kay tapuykunata kutichishkakunaka shuk jatun pankapimi killkashka kana kan. Kay yachana kamupi yuyaykunata killkashka shina (54 pankapi rikuy) chimpapurashpa rikuna kan yachakukkunapak yachashkakunawanpish chaypimi rikurinka wakin yachaykunaka riksishka shinapish shuk yachaykunaka mushuk kashkata rikurinka chay yachaykuna mushuk kashkata yachakuk mashikunata rikuchina kanchik.

**Rurasha nishpallami kay yachayta rikuchitaka rurana.** Yachakukkuna mashna yachashkataka yachankapakka 55 pankapi killkashkata kutichishpami yachana kan chayllatakmi yachay kamuta ña tukuchishpapi rurana kan. Imashina ruranamantaka tantachishkata 1pi rikuna kan.

**Yachakukkuna imata shuyankuna**

Yachakukkuna kay kamumanta imata shuyankunata yachankapakka tapuykunatami rurana kan, churashunlla kay tapuyta ruray tukunkichik ¿kunan punllaka imapak tantanakushkanchik?

kipami yachakuk mashikunaka kay kamupi imata kachakrishkataka yachak chayana kan, jatun pankakunapi killkashpa rikuchi tukunkichik mana kashpaka tarjetakunapipish killkay tukunchik.

Manarak yachay kallarikpi mashna pachakuna minishtishkata rikuna kan, ashtawanpish wakin rimaykuna jawa mana yacharishkatapish achikta willana kan, churashunlla:

- ▶ Shuktak unkuykuna imashina wiñak kashka jawa.
- ▶ Lancha ama japichun jarkaykunamanta.

**Mirachishka yuyay 1**

Lanchapak ciclota alli jamutachinkapakka kayta rimay tukunchik: mashi Juanka kashnami: taytamamaka yunka llaktamantami shamushkakuna kan, paykunaka 25 watakunata charishpa sawarirkakuna chay washami Juantaka kay pachaman apamushkakuna. Juanka Guaranda villapi wacharishka wiñashkapi, 30 watapimi sawarishka kunanka ishki wawakunatami charin.

**Mirachishka yuyay 2**

Kay Ecuador mama llaktapi papata tarpukkunaka tizón tardíotaka lancha shimiwan riksinkuna chaymanta yachakukkunaman lancha shimiwan rimashpa yachachina tukunchikllami.

## Yachayruray 1. Imashina lancha rikurik kashkata, maymanta lancha shamuk kashkata shinallatak chay kurukuna maypi wiñak kashkata yachashun

**Paktaykuna** Kay yachaykunata tukuchishka washaka yachakukkuna mashikunaka shuyushpa rikuchi tukunkunami imashina lancha rikurik kashkata, maymanta lancha shamuk kashkata shinallatak chay kurukuna maypi wiñak kashkamantapish:

- ▶ Yuraman esporakuna katiri (unkuy japi).
- ▶ Manchakuna wiñari.
- ▶ Pelusilla tiyarik (pankakunawan chakruri).
- ▶ Espora unkuykuna shuk yuramanta shuktak yuraman wayrapi pawan.

**Minishtirinmi**

- ▶ Jatun pankakuna, jatun killkana kaspikuna (Mirachishka yuyay 3) shinallatak shuyuna kaspikuna.
- ▶ Algodón shinallatak goma pelusillata rurashpa rikuchinkapak.
- ▶ Yurak panka mana kashpaka espuma sintética nishkamantatapish bola rurashkata minishtinchik fitótoramanta esporakunata rikuchinkapak. Tawka bolakunata yana cartulinapi pegashpa churana.
- ▶ Tawka shuyu (3 waylla, 1 ankas) 4 jatun cartulina (70 x 50 cm). Cartulinapi kaytami shuyuna kanchik (Rikuy tukunchik panka 53 shuyushkata):
  - » Waylla cartulinapika shuk alli papa yurata shuyuna.
  - » Waylla cartulinapika shuk papa yurata uchilla yana manchakunawan shuyuna (kay yuraka rikuchinkami unkushka yurata, muyu unkushka kashpa lancha unkuy japishkata rikuchinkami).
  - » Shuktak waylla cartulinapika lanchawan kak shuk papata shuyuna.
  - » Ankas cartulinapika tamyata shuyuna.

**Mirachishka yuyay 3** Ecuador mamallaktapika “rotulador” taka marcador shutiwan riksinchik shinallatak Perú mamallaktapika plumón shutiwan.

- Imashina**
1. Imamanta kay rurayta rurakrishkata yachakukku-naman willanami. Lanchawan kak tarpushka papa chakrata charishpa imaka kay yachayta charinkapakka chaymanmi rina kan chashnami ashawan lancha jawa yachari tukunmi unkushka papakunata rikushpatak.
  2. 5 mashikunata ñawpakpi shayachina lancha imashina wiñarik kashkata rikuchinkapak. Chay pichka mashikunamanka shuk cartulinata kuna shinallatak ima rurakrishkata willana. Imashinami cartulinakunapi shuyushkata rikushpami chay 5 mashikunata kayta rurana kan:
    - ▶ Shuk tarpushka papa chakra lancha illak.
    - ▶ Fitóftoramanta esporakuna.
    - ▶ Tamyá.
    - ▶ Lanchawan kak muyu.
    - ▶ Lanchawan kak shuk yura.
  3. **Yanapak rimarishkata uyashpa chay 5 mashikunaka ñawpakpi shayarina kan lancha imashina wiñarik kashkata rikuchishpa.** Willanchik imashina lancha wiñarik kashkata kaytami yanapakka rimanka 5 mashikuna ñawpakpi shayarishpa rimashkata uyashpa rikuchichunka (kay pankakunapimi killkashka tiyakun 51, 52):
    - a. **Esporakunaka Fitóftoramantami wayrapi yuraman pawan.** Esporakunaka shuktak papa yura, sachakunamanta shinallatak unkushka sachá kiwakunamantapish shamushpa alli papamanka unkuchin.
      - › Esporakuna imashina shuk unkushka ruramanta shuktak unkushka yuraman yallikta rikuchi tukunchikmi yurak pankakunawan bola rurashkakunawan mana kashpaka cartulinapi llutashka espuma sintéticawanpish.
    - b. **Esporakunaka alli panka shinallatak yuyumanpish yaykunmi.** Tamyá punllakunapi esporaku-



naka alli yurakunaman chayan pankakunata, yuyuta shinallatak papa muyutapish yana-yachinkapak.

- › Alli yura shuyushka jawapi yurak pankawan bolakuna rurashkata llutachina mana kashpaka espuma sintéticata llutachina Fitóftoramanta esporakunata yachapayashpa, kipaka jatun killkana kaspiwan shutita killkana kanchik.
- › **Manchakunaka wiñankuna.** Chiri punllakuna kaspika yana manchakunaka allimantami wiñan. Kunuklla punllakunaka kaspika ashawan utkami manchakunaka wiñan.
- › Manchakuna imashina wiñakta rikuchi tukunchikmi jatun killkana kaspiwan shuyushpa.

**c. Pelusilla tukunmi.** Tamyapunllakuna kaspika yurak kutakunata churashka shina papa panka manchapika pelusilla nishkakuna rikurin.

- › Algodónwan pelusillata rikuchina; algodóna gomawan pegachina manchakunapak muyuntikpi. Fitóftoramanta esporakunata rikuchinkapakka yurak papelean bolakunata rurashkakunawan mana kashpaka espuma sintéticata pelusilla jawapi pigashpa churana.

**d. Esporakunaka shuktak yurakunaman pawan shinallatak muyukunamanpish yaykunmi:**

- › Esporakunaka pawanmi. Mana tamyapunllakunapimi esporakunaka unkushka yurakunamanta alli yurakunaman pawan. Alli yurakunaman chayashpa tikra wiñay kallarinkuna.

**e. Esporakunaka shuktak yurakunaman pawan shinallatak muyukunamanpish yaykunmi:**

- › **Esporakunaka pawanmi.** Mana tamyá punllakunapimi esporakunaka unkushka yurakunamanta alli yurakunaman pawan. Alli yurakunaman chayashpa tikra wiñay kallarinkuna.
  - › **Esporakunaka** Tamyá punlla kákpika espóra unkushkakunaka yurakunamanta shuktak alli yuraman pawanmi, chashnami tikra wiñay kallarin
  - › **Esporakunaka yurakunamanta mayllarishpa muyuman chayan.** Tamyá punllakunapika esporakuna unkushka yuramanta tamyawan mayllarishpa muyuman chayan. Allpa shutuklla kákpika esporakuna muyuman yaykun muyuta yanayachinkapak, chaytaka yana killkana kashpiwan shuyuna. Kay muyukunata tarpukpika yuraka lanchwan tukunka chashnami tikra chay lanchaka chay yurapi wiñanka.
4. Kashna rikuchitaka ishki kutinllapish rurana kan chikan chikan yachakukkunawan.
  5. 3 o 5 mashikunata tantachina. Mashikunata tantachina chaypita shukllapish ñawirinata killanata yachakmi tiyana kan.
  6. Chay tantachishka mashikunamanka shuyukunata, algodón, goma shinallatak yurak pankamanta uchilla bolakuna rurashkata mana kashpaka espuma sintéticata kuna kanchik.
  7. Chay minishtirishkakunata kushkakunawan lancha imashina wiñarik kashkata shuyuchinami.
  8. Paykuna ima shuyushkata willachun mañanami.
  9. Tantanakushpa yachakukkunawan parlanakuna kay yachaypi yachashka rurashkakunamanta, paykunawanllatak lancha imashina wiñakta, Fitóftora maymanta shamukta shinallatak ima pachapi wiñay tukun jawamantapish rimanakuna kan.
  10. Panka 53 manta rikchata llukchishkata tukuy yachakukkunaman kuna kanchik chay killkata ñawirishpa yachashkakunata yuyarichunk.



## Yuyachikuna

Kaytaka yanapakmi yachana kan

### ¿Maymantatak Fitóftora shamun?

- ▶ Lanchaka wacharishkami yuyachin kay chiri llaktakunapi mana kashpaka México llaktapi.
  - ▶ Yura ña manchakunawan rikurikpika lancha japishkami kanka chay lanchaka kay yurakunamanta chayashkakuna kanka:
    - » Papa tarpushkakunamanta
    - » Sacha yurakunamanta
    - » Ima shuktak yurakunamantapish
- } Lanchawan  
} unkushkakuna
- ▶ Manchakuna tukushpami lanchaka rikuri tukunpishmi unkushka murukuna shinalla muyukuna kakpi.

Kaypak washa lancha imashina wiñak kashkata rikuchishun. Lanchaka wiñarí tukunmi 3 punllakunamantaka 15 punllakunakama

### a. Kutakunata shina tiyakukkunamantami lanchaka pawan

Lancha wiñay kallarinmi unkushka yurakunamanta shuktak alli yuraman chayakpi.

### b. Lanchaka alli panka, yuyumanpish yaykun

- ▶ Lanchaka yanayachishpa kallarinmi alli panka alli yuyuman chayashka washa.
- ▶ Tamyá, garwa, puyu punlla kákpimi lanchaka wiñarinka.
- ▶ Yuraman lancha chayashka kashpaka uku pankakunapirakmi yanayashka rikurinka.
- ▶ Lancha yuraman yaykukpika “*infección*” shutiwanpish riksi tukunchik.

### c. Manchakunaka wiñankuna

Kunuk pachakuna kákpimi ashtawan jawalla lanchaka wiñay tukun. Ashawan kunuk punllakuna kákpí imakarin lanchaka uktami wiñan.

**d. Pelusilla tukunmi**

- ▶ Achka shutuk punllakuna kakkpimi pelusillaka tiyarinka.
- ▶ Pelusilla tutakunami ashtawan rikurinka, tutakuna garwa urmak kashkamanta. Tamyá, puyu tiyakpika pelusillaka ima pachapish tiyarinka wiñankalla.
- ▶ Fitóftoramanta esporakunawanmi pelusillaka tukushka kan.
- ▶ Pelusilla wiñaytaka *esporulación* shutiwanpish riksi tukunchik.

**e. Esporakunaka  
shuktak yurakunaman  
shinallatak  
muyukunamanpish  
chayan**

- ▶ **Esporakunaka pawan.** Mana tamyá punllakunapi esporakunaka wayrapi pawashpa shuktak alli yurakunaman chayan shinami chay yuraman chayashpa wiñay kallarin.
- ▶ **Esporakunaka tamyawan saltarin.** Lanchapi tamyá urmakkpimi shuktak alli yuraman saltan, shinami lanchaka chay alli yurapi wiñay kallarin.
- ▶ **Lanchaka tamyá yakuwan mayllarishpa muyuman uriyan.** Tamyákpika lanchaka mayllarishpami yuyukunamantaka muyuman uriyan. Allpapi nuyu tiyakpika muyuman lancha chayashpa yananay kallarinmi. Kay unkushka muyukunata tarpukpika lanchawanmi chay yurakunata wiñanka shinami lanchaka chay yurapi jawalla wiñanka.

**¿Maypitak lanchaka  
jawalla wiñay tukun?**

Lanchaka nuyu-shutuk kakkpimi ashtawan jawalla wiñarín; chay punllakunapi lanchaka utkashpa miran. Shinallatak kunuk pachakunapipish lanchaka utkaman wiñan. Mana tamyákpika shinallatak chiri punllakuna kakkpika lanchaka mana rikurinchu.

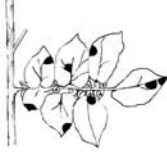


# Lancha imashina wiñarin

## Kay pankataka yachakukunaman kuna kan

Yachana Kamu 2

Manchakuna mirarin. Kunuklla punllakuna kashpakarin manchakunaka utkashpa mirankuna



Esporakunaka alli panka shinallatak yuyumanpish yaykunkuna



Pelusilla tukun.



Fitóforamanta esporakunaka pawan (papa tarpushka, sachá kiwakuna shinallatak chayshuk lanchawan unkushka kiwakunamantapish)

**Kaypimi lanchaka wacharin**

Esporakuna tamyawan saltarin mana kashpaka pawan



Esporakuna mayllarishkami kan

Esporakunaka muyuman yaykuna

**Fitófora maypi wacharin:** Muyukuna lanchawan kashpa



Muyukuna lanchawan kashpakami yurakunaka ña unkuywan wiñan

**¿Imashinataq punllakunaka kana kan lancha utkashka wiñachunka?  
Lanchaka utkashpami wiñan shutuklla shinallatak kunuklla punllakunapi.**

## Tukuchinkapak ruraykuna

### Yachashkakunata tikra rikuy

Yachashkakunata ama kunkarinkapakka kay jawaman-ta tikra rikuna kanchiks:

- ▶ Lancha imashina kallarin-tukurin.
- ▶ Fitóftora maymanta rikurin.
- ▶ Maypitak lanchaka jawalla wiñari tukun.

Kayta yuyarinkapakka yachakukkunaman kushka rikcha pankakunata rikuy tukunchik. Kay pachapi rikuna kanchik yachakukkuna imatami kutichirkakuna manarak yachay kallarikpi rikunkapak ashawan yachashka mana yachashkata. Shinallatak rikuy tukunchikmi parlankuykunapi yanapak killka yuyaykunata japishkakunata.

### Tukuchinkapak yachyta rikuy

**Kay yachayta rikuytaka ruranatakmi kan.** Paktashka mana paktashkata rikunkapakka mayjan yachakukkunamanpish mañana shuyushpa rikuchichun lancha imashina kallarin-tukurin, maymanta lancha shamun shinallatak maypitak jawalla wiñari tukuntapish:

1. Lancha yuramanta chayari.
2. Manchakuna wiñari.
3. Pelusilla tukushpa lancha wiñari.
4. Lancha shuk yuramanta shuktak yuraman pawan shinallatak muyukunaman chayari.

**Kay yachay rikuytaka rurasha nishpalla ruray.** Yachashkata ashtawan rikusha nishpami kay tapuykunata kutichichun mañana kanchik, kay tapuykunaka Panka 55pi killkashka tiyakun, imashina ruranataka Tanchishka 1pimi willakun. Chay tapuykunata kutichishka pachallatakmi alli kutichishkata rikunachina kan shinallatak yachakukkunawan parlanakuyta rurana.

### Kay kamuta rurakkunaman yanapankapak

Kay yachay kamu imashina rikurishka jawa yachakukkunata kay tapuykunata rurana kanchik:

- ▶ ¿Imapaktak lancha imashina kallari-tukrinta yachana alli kashka?
- ▶ ¿Ima llakikuna tiyashka?
- ▶ ¿Rurankapakka pachakuna paktachu karka?

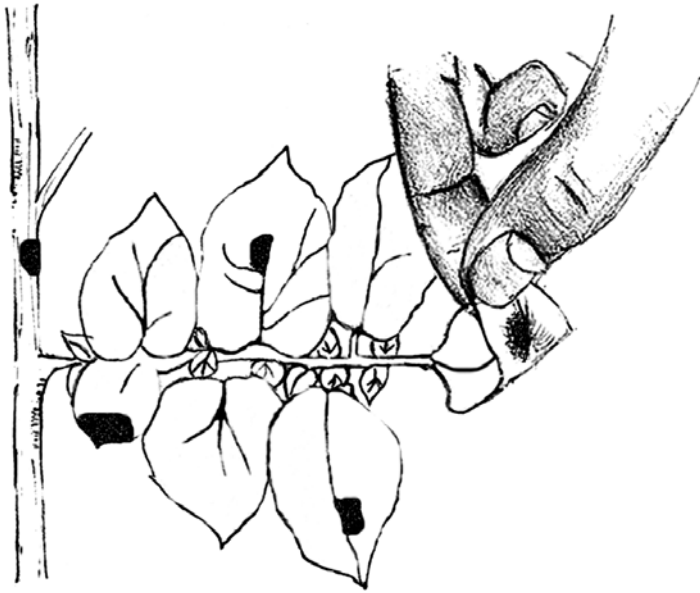
## TAPUYKUNA

1. ¿Maymantatak Fitóftora shamun?
  - (a) Rayu takarinakushkakunamanta shamun
  - (b) Papa yurakunamanta mana kashpaka shukta lanchawan unkushka sacha yurakunamanta
  - (c) Mana yachani
2. ¿Alli yurakunapi lancha wiñankapakka imashinatak punllakunaka kana kan?
  - (a) Jampikunata mana churashkamanta
  - (b) Tamyá o garwa
  - (c) Mana yachani
3. ¿Shuk yurapak pankapi lancha urmakpika imatak tukun?
  - (a) Yanaklla mancha tukun
  - (b) Pelusilla tukun
  - (c) Mana yachani
4. ¿Imashinatak punllakunaka kan lancha utkashka wiñachunka?
  - (a) Chiri
  - (b) Rupay
  - (c) Mana yachani
5. ¿Lanchamanta pelusilla tiyarichunka imashinatak punllakunaka kana kan?
  - (a) Achka shutuk - nuyu
  - (b) Asha shutuk - nuyu
  - (c) Mana yachani
6. ¿Unkushka yuramanta shuktak alli yuramanka imashinatak esporakunaka chayan?
  - (a) Wayrapi mana kashpaka tamya urmakpi saltachikpi
  - (b) Tuta garwa urmakpi
  - (c) Mana yachani
7. ¿Imashinatak esporakunaka muyuman uriyan?
  - (a) Tamyá yakuwan mayllarishpa
  - (b) Muyumanka tallota yaykun
  - (c) Mana yachani

**Alli kutichishkakunata rikuchik** 1 b; 2 b; 3 a; 4 b; 5 a; 6 a; 7 a.

## Yachana Kamu 3

# Sinchi papakunata tarpushpa lanchamanta jarkarishunchik







# Manarak tantanakuyta kallarithpa yanapak allichirinapak

## Manarak yachay kallarikpi imata minishtinchik

Yachana 1ta shinallatak Yachana 2tapish riksina kanchi.

## Pachakuna

Ishkay pachakunata minishtinchik shuk tantanakuyta rurankapak.

## Kallari rimay

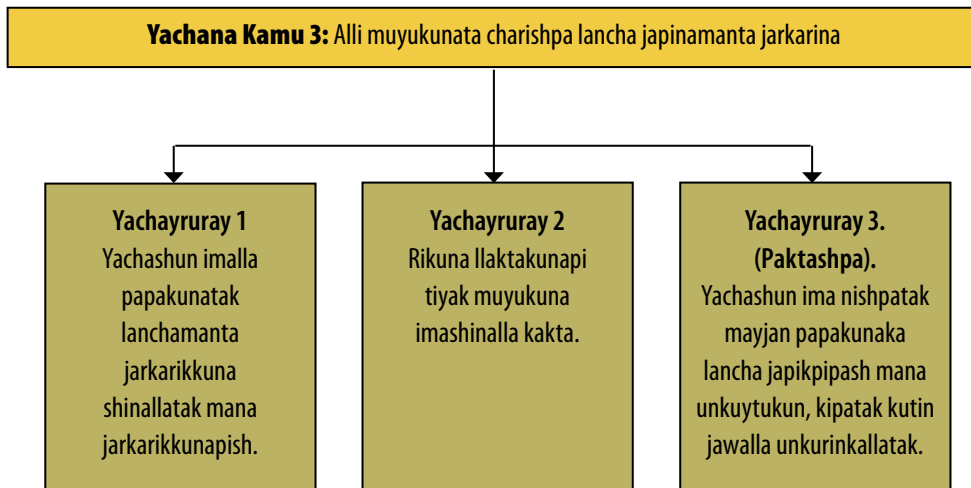
Lanchata jarkanata yuyashpaka alli sinchi papakunata tarpushpallami jarkay tukunchik. Kay yuyay, shinallatak shuktakunata ñawpakman yachashpami, ashka alli kan ima papakunata tarpunata yuyarina pachakunapi. Kay yachana kamupika shuk ruranapishpimi tiyan yachakukkuna papakuna lanchamanta jarkarinamanta shuktak yuyaykunata riksishun munashpaka ruray tukunllami.

## Paktaykuna

Yachakukka kay yachanata tukuchispaka ushankami:

1. Shuykunapi sinchi muyuna shinallatak mana sinchi muyukuna ima kashkata rikuchinata ushankami, willay tukunkunapish imashina kimsa shuktak shina kakta shinallatak imamanta sinchi muyukunata charinata.
2. Llaktapi tiyak papakunapak shutikuna killkashpa rikuna kanchik mayjanlla papakunata lancha japik kakta mana japik kaktapish.
3. Rurasha nishpaka kayta ruray. Tantanakushkapak ñawpakpi rikuchina imamantatak sinchi lanchamanta jarkari muyukuna kakta, shinallatak imamanta kipataka mana sinchi kay tukun, ruranapi rikushpa ruray tukunkillami.

## Yachana pankaka kashnami allichishka



## Yanapak allichirinapak

1. Allimanta kay killkata rikuna kan.
2. Minishtirishkakunata japina 1, 2 shinallatak 3 ruranapi rikuchikuk shina.
3. Kay pankakunamanta rikchakunata japina: 66, 68, 69, 70 shinallatak 76 (tukuy yachakukkunamanmi paktata kuna).
4. Paktashpaka. Minishtirikpika yachakukkuna yachashkata rikuchi tukunmi chaypakka allichinami shuktaka yachayta kallarinapak shinallatak shuktaktaka tukuchinkapak (panka 79 shinallatak Tantachishka 1).
5. Shuk alli pampapi tantanakuna asha ruraykunata rurankapak (rikunapak, tablapi juntachina imashina muyukuna kakta rikushpa shinallatak ima allikunatak tiyan llaktapi tiyashka muyukunata tarpukpika) shinallatak ushahpaka lancha japishka papa tarpushkapish tiyanami kan.

# Yachakukkunawan tantanakuy pachakunapi ruranakuna

## Ñawpa yachana kamupi yachanata kutin rikuna

Kay tantakuytaka yanapak pi kashkata willashpa shinallatak ima jawamanta yachakrishkata willashpami kallarina kan. Kipami kay rimaykuna jawa tukuykuna rimanakuna kanchik:

- ▶ Pankakunapi, yuyupi shinallatak muyupipish imashina lancha rikurik kashkata.
- ▶ Imatak lanchata wiñachin.
- ▶ Fitóftoramanta esporakuna ima nisha nishkata shinallatak imata rurak kashkata.
- ▶ Imashina kallarin-tukurinpi lancha japishpa.
- ▶ Maymanta lancha shamun.
- ▶ Ima pachakunapi lancha wiñari tukun.

Chaypakka yachakukkunaman kushka killkakunatami japitukun, yachana kamu 1 shinallatak yachana kamu 2 pi.

## Kallarinkapak yachashkakunata rikuchi

**Kay yachay rikuytaka ruranatakmi.** Kay tapuykunatami churana kanchik yachakukkuna kutichinata ushachun. Paykunapak yachashkakunatapish japina, chay pachallatak, rikuna mashnatami yachak kashkata:

- ▶ ¿Imatak lanchamanta jarkarik sinchi muyu? ¿Imatak mana lanchamanta jarkarik muyu?
- ▶ ¿Imashinatak rikunchik sinchi muyu kakta shinallatak mana sinchi muyu kaktapish?
- ▶ ¿Ima allikunatak tiyanka lanchamanta jarkashpa alli sinchi muyukunata charinaka?
- ▶ **Rurasha nishpallami kay yachay rikuchitaka rurana.** Shuktak muyukunapish tiyanmi lancha yaykushpa kashpapi (Mirachishka yuyay 1) mana lanchawan unkun, shinapish kipataka jawalla unkunllatak. ¿Imamanta chashna tukunka?

Kay yachana kamupi yuyaykunata killkashka shina (77 pankapi rikuy) chimpapurashpa rikuna kan yachakukkunapak yachashkunawanpish chaypimi rikurinka wakin yachaykunaka riksishka shinapish shuk yachaykunaka mushuk kashkata rikurinka chay yachaykuna mushuk kashkata yachakuk mashikunata rikuchina kanchik.

### **Rurasha nishpallami kay yachay rikuchitaka rurana.**

Yachakukkuna yachashkataka japitukunchikmi panka 79 manta tapuykunawan, chayllatatakmi yachanata tukuchiska kipaka tapuna. Rikuchik allichishakaka Tanchishka 1 pi churashka.

### **Yachakukkuna imata shuyankuna**

Yachakukkuna imata kay yachanamanta shuyashkata yachankapakka kay tapuykunata churay tukun: ¿imapakmi kunan punllaka tantanakunchik?

Kipami yachakuk mashikunaka kay kamupi imata kachakrishkataka yachak chayana kan, jatun pankakunapi killkashpa rikuchi tukunkichik mana kashpaka tarjetakunapish killkay tukunchik.

Minishtirintakmi kay yachanapi mana rimanakunata mana rikushunchu nishpa, churashunlla:

- ▶ Químico wan imashina lanchata karkanata.

### **Mirachishka yuyay 1**

Ninkunami shuk muyuka “yaykushka kanmi” shuk Centro de Investigación mana kashpaka shuktak institucionkuna tarpukunapak makipi churakpi, mana kashpaka chayshuk tarpushkakunamanta apamushka kashpash.

## Mirachishka yuyay 1. Yachashun imatak kan sinchi muyukuna shinallatak mana sinchikunapish

**Paktaykuna** Kay rurayta tukuchishka kipaka yachakukunaka ushankakunami shuk shuyupi rikuchinata ima sinchi muyuna kashkata shinallatak mana sinchi muyukuna kaktapish, kimsa shina chikanyachikkunatapish rikuchishpa shinallatak ama lancha japichun mayjanlla papa muyukunata tarpunamantapish riksichi tukunkakunami.

- Minishtirinmi**
- ▶ Fitóftoramanta pelusillata rikuchinkapakka algodón shinallatak gomata minishtinchik.
  - ▶ Uchilla yurak papel muyuchishkakuna mana kashpaka espuma sintética lancha pillurishka kakta rikchinkapak.
  - ▶ Puka marcadorkuna.
  - ▶ 3 jatun cartulinakuna (70 x 50 cm) shuktak shuktak colorkuna (2 wayllakuna shinallatak shuk ankas).  
Kaykunatami shuyuna:
    - » 2 papa yurakunata 2 waylla cartulinakunapi.
    - » Tamyataka ankas cartulinapi.

- Imashina rurana**
- Kay ruraytaka ruray tukurinmi lancha japishka papa tarpushkapi shinallatak rikushkami imashina lancha kallarin shinallatak imashina lancha tukurin (Yachana kamu 2).
1. Imamanta kay rurayta rurakrishkata yachakuk mashikunaman willanami.
  2. Chusku mashikunata akllana paykunaka lancha tukuchun, shukka papa yura kachun shuk alli muyumanta wiñashka, shuktak yuraka mana sinchi papamanta wiñashka shinallatak shukka tamyá.
- ▶ Lanchata rikuchikuk mashiman kuna yurak papel pilluchiskakunata mana kashpaka espuma sintécatapish (rikuchinkami lanchata apakta) shinallatak algodónka (unkuyta wiñachikta).

- ▶ Papa yurakunata shinallatak tamyata rikuchik mashikunamanka cartulinakunata papata shinallatak tamyata shuyushka cartulinata kuna kan.
3. Chay chusku mashikunamanka imata rurakrikta wil-lanami:
- ▶ Lanchata rikuchik mashika ishkay shina muyukunaman kuchuyashpa esporakunata llutana, Tamyata rikuchik mashika chaypimi kana kan lanchata apak esporakuna yuraman yaykuchun.
  - ▶ Sinchi muyuta rikuchik mashika lanchata apakkunata pampaman urmachina kan. Mana kashpaka, mana sinchi muyumanta wiñashka pankakunaka chaskinallami kan tukuy esporakunata. Esporakuna maypi urmashkallapitakmi shuyuna kan puka marcadorwan uchilla manchakunata.
  - ▶ Manchakunata jatunyachina. Mana sinchi yurakunapika manchakunaka ashkatami mirarina kan sinchi muyumanta wiñashka yurakunatapish yalli.
  - ▶ Yachakkunaman yuyachina yuyarichun mashna jayak kimiku jampi minishtinamanta sinchi muyukuna shinallatak mana sinchi muyukunapish, shinallatak yalli tamyata watapi tapushka chinkarinamanta. Minishtirikpika ashata rimana kan fungicida ima kakta (rikuna Yachana kamu 4).
  - ▶ Chay sinchi mana sinchi muyukunapika asha papa murukunatami shuyuna. Sinchi muyuwan tarpushkapika jatun murukunatami shuyuna kan chaykunaka mana achka lancha japishkamanta jatunyanmi ninkapak. Mana sinchi muyukunawan tapushka shuyupika ashalla papa murukunatami shuyuna, kayka lancha japishkamantami mana ashka jatunyashka ninkapak.
  - ▶ Tukuchinkapakka yachakukkunaman mañana killkachunkuna mayjan muyukuntak sinchi shinallatak mana sinchikunapish.

4. Tantanakushpa yachakukkunawan rimanakuna imalla rimaykunata rikushkata paykunallawantak nina imatak sinchi muyuna kashkata shinallatak mana sinchi muyukuna kaktapish, kimsa shina chikanyachikkunatapish rikuchishpa shinallatak ama lancha japichun mayjanlla papa muyukunata tarpunamantapish.
5. Shuk rikchata kuna panka 66 tukuy yachakukkunaman ima kashkata achikyachinkapak shinallatak ima kashkakunatapish ama kunkarichunkuna.





## Yachashun imatak sinchi muyukuna shinallatak mana sinchikunapish

Kay pankataka yachakukkunaman kuna kan

### Sinchi muyukuna

Tamyakuy pachakunapi ashallata unkuk muyukunami, shinaka pukunatami charin.

### Mana sinchi muyukuna

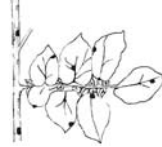
Tamyakuy pachakunapi ashkata unkukkunami shinaka papaka mana ashka pukuy tukunmi.

### ¿Imashinakunatak?

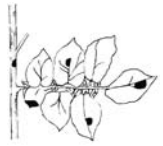
Ashalla lancha yuraman yaykurin



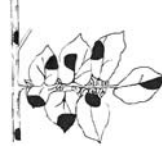
Ashka lancha yuraman yaykurin



Allimanta manchakunaka wiñarin



Manchakuna utkami wiñarin



Ashalla pelusilla tukun papa yurapi



Ashka unkuya wiñachikkuna tiyarin



### ¿Ima allikunatak tiyanka shinallatak ima mana allikuna?

Mana ashka fungicidata minishtin

- Ashalla kullkiwan ashalla pachakunapi fukuy tukun.
- Wayratapish ashallata mapayachin.
- Kausayta ashallata wakllichin.
- arpushkaka tamy wata kakkipish mana chinkarinkach.

- Ashka fungicidakunata minishtin.
- Ashka kullki shinallatak pachakunapish achkata minishtirin.
- Wayrata ashtawan llakichin.
- Kausayta ashtawan wakllichin.
- Tarpushkaka tamy wata kakkpika lancha japishpa tukurinkami.



## Yachayruray 2. Rikushun mayjanllatak shuktak shuktak kikin charishka muyukunata shinallatak ima allikunata charikrinchik

### Paktaykuna

Kay rurayta tukuchiska kipaka yachakukunaka imashinalla muyukuna kakta rikuy tukunkakunami tabla de características y beneficioswan, llaktakunapi tiyashka muyukunawan lanchata chimpurankapak.

### Minishtirinmi

- ▶ Marcadorkuna.
- ▶ Jatun panka. Shuyuna panka 8 pi rikuchikuk tablata
- ▶ Shuyuna kaspikuna shinallatak pichanakunapish.

### Imashina rurana

1. Kay rurayta ima yuyaywan rurakushkata willana.
2. Pishka mana kashpaka kimsa tantanakuykunata rurana. Chay tantanakuypika shukllapish ñawirina killkanata yachakmi tiyana kan.
3. Tukuy tantanakushkakunaman shuk shuyuna kaspi, shuk pichana, shuk rikcha panka 68 kunata kuna. Chay tablata pirkapi llutana, ñawpaman jatun pankapi shuyushkami kana kan.
4. Tablata juntachina yachakunawan shinallatak rimanakuna imashina muyukuna kakta chaymanta alli papa muyuta aklankapak.
  - » Lancha japimanta jarkanata rikushpaka sinchi muyukunatami aklana tukun, chaywanka mana ashka jayak jampikunata minishtinchikchu shinallatak tarpushkapish mana yankalla kay tukunchu. Shinallatak shuktak yuyaykunapish tiyan sinchi muyukunata tarpunkapak chaymanta rikushpaka achka fukuk kashkata shinallatak katunkapak chani wichiashka kakta rikunami.
  - » Shuk tantanakuypi rimanakuna yachakukunawan ima allikuna tiyashkata shinallatak ima mana allikuna tiyashkatapish llaktapi tiyak papa muyukunata tarpukpi.
5. Tukuy yachakunawan rimanakuna imamantatak alli kikin llaktapi tiyashka muyukuna jawa.
6. Tukuy yachakukunaman kuna rikcha pankakunata kay pankakunamanta 69 shinallatak 70. Rikuchinapish kanchik llaktapi tiyak papa muyukunaka lanchawan jawalla unkuy tukuk kashkata chaymantami shutuklla pachakunapika achka tarpushkakunami chinkari tukun.



## Papa muyukuna imashinallatak kan lanchamanta jarkarinapakka

Kay pankataka yachakkunaman kuna kan

















Ima shuti muyude*	Sinchi/mana sinchi	Fungicidata mashna churana *	Mapayachin	Tarpushka chinkari tukun	Mashnatak pukunka	Jatunapak chani	Tukurik yuyaykunaa *















\*Rimanakunami tukun tamya pachapi shinallatak chakishka pachapika mashna kutintak fungicidata churanamanta



## Kaypika Ecuador llaktamanta ashka muyukuna imashina lanchawan chimpapurakkuna

Kay pankataka yachakkukunamanmi kuna

Shuti	Ima papa	Ima papa	Lanchata chimpapuray
Bolona			Mana sinchi
Cecilia			Mana sinchi
Chola			Mana sinchi
INIAP-Esperanza			Mana sinchi
INIAP-Fripapa			Sinchi
INIAP-Gabriela			Mana sinchi
INIAP-Margarita			Mana sinchi
INIAP-María			Mana sinchi

Shuti	Ima papa	Ima papa	Lanchata chimpapuray
INIAP-Rosita			Sinchí
INIAP-Santa Catalina			May pachallapish sinchie
INIAP-Santa Isabela			Mana sinchi
INIAP-Soledad			Sinchí
Superchola			Mana sinchi
Uvilla			Mana sinchi
Yema de huevo			Mana sinchi

Paktashpaka kay llankayta rurana

## Yachayruray 3. Yachashun imanishpatak mayjan muyukunaka lancha japishka kakpipish mana unkurin, kipataka jawalla unkuriklla kashkamanta

**Paktay** Kay rurayta tukuchiska washaka yachakukkunaka ushankakunami tantanakushkakunapak ñawpakpi rikchinata ima muyu jarkarik kashkata shinallatak imamantatak kutin kipataka ña mana jarkari tukun, rurana-pi rikuchishkakunata katishpa.

**Minishtirikuna**

- ▶ Shuk plancha de espuma sintética.
- ▶ 5 yurak aujakuna shinallatak 5 puka aujakuna.
- ▶ Shuk candado paypak llawewan shinallatak 4 shuktak llavekunatik.
- ▶ 20 uchilla waylla cartulina tarjetakuna (2 x 2 cm). Shuk papa yurata shuyuna chay tarjetakunapi.

**Imashina rurana**

1. Ima yuyaywan kay rurayta rurakushkata yachakukkunaman willana.
2. 3 mana kashpaka 4 papa yurakuna tarjetakunapi shuyushkata plancha de espuma sintéticapi jawapi churana. Kay muyukuna rikuchinmi kunanlla apamushka papakunata chaymantami ashalla tiyan manarak achka muyukuna tiyachu nishpa yachakukkunaman willana.
3. Yachakukkunaman kuna yurak aujakunata chaymantaka nina rikuchinmi lanchata apakta, mana ñukanchik muyukunawan tarpushkata llakichinka. Yuyarina chay lanchata apakka shukta papa yurakunamantami shamun, shuktak yuritakunamanta shinallatak chay unkuaywan unkushka sachakunamantapish.
4. Yachakukkunata mañana yura pankakunapi shita-chun chay aujakunata.
5. Chay auja mana pankaman chayashka kashpaka rikuchinmi lanchata apakka pampaman urmashpa wañushkata.

6. Shuktak auja pankata japikpika ninami kay yuraka mana lanchawan unkunkachualli sinchi jarkarik muyumanta wiñashka kashpa.
7. Rikuchina chay jarkariklla muyuka imamantatak mana unkun, mañana shuk mashita chay yurata rikuchik kachun shinallatak shuk wishkashka candadota kuna. Mayjanmi chay aujawan shitakmanka kuna shuk mana alli llaveta chaymantaka paskay nina. Muyuka sinchi jarkariklla kashkamantaka, candadoka (yurakunapak jarkarikta rikuchik) mana alli llavewanka mana paskarik tukun (chayka rikuchinmi lanchaka mana jarkashkakuna mishashpa yaykuy tukuk kashkata).
8. Chay muyupi lancha kawsankapak imashinapish tukunami kan. Chayta rurankapakka yurak aujatami puka aujawan cambiana tukun. Puka aujakunaka rikuchinmi jarkarishka yurakunata mishay tukushkata, chaymanta paskashpa yaykuri tukun unkuykulantik.
9. Llutana 5 mana kashpaka 6 mushuk yurakunata chay espuma sintética jawapi shinallatak nina yurakunaka mirarishkami tarpukkuna munashpa tarpushkamanta, shinallatak ashka allpapi tarpushkakuna.
10. Kutinllatak yanapakkunata mañana aujakunata shitachun. Puka aujakunata charikuk mashi aujawan pankapi shitashpa paktapika ninami chay yuraka lanchawan unkunmi. Rikuchina kanchik shuklla aujawan ashalla pankakuna tiyakpi mana jawallachu, achka pankakuna tiyakllapimi jawalla unkuchinka puka aujakunaka.
11. Imamanta chay yura unkuk kashkata rikuchinkapak, wishkashka candadota kuna yurata rikuchikman.
12. Mayjanmi puka aujawan paktarka pay mashiman kuna chay candadopak llaveta jawalla paskay tukuchun.

13. Nina tukun lanchata apakkunaka puka aujakuna shinami kanka paykunallami kawsay tukunka. Yura aujakunapak rantika puka aujakunatami churana.
14. Llutana 5 mana kashpaka 6 mushuk yurakunata espuma sintética jawapi shinallaak nina yurakunaka mirarishpami katin tarpukkuna munashpa chay sinchi muyuta tarpushkamanta.
15. Kutinllatak yachakkunata mañana kutin aujakunata shinatachunkuna. Nina shinallatak ashka yurakunami jawalla rikushka kay tukun chay jutkukkunawan. Rikuchina shinallatak ña chay muyukunaka mana sinchi jarkari tukuk kashkata.
16. Tantakushpa rimanakuna imalla rimashkakunamanta shinallatak ninakuna imata jarkarik muyu kashkata shinallatak imamanta ña mana sinchi kay tukun.
17. Rikchakunata kuna panka 76 tukuy yachakukunaman shinallatak yachashkata tikra rikushpa ama kunkarichunkuna.





## Yuyachikuna Yanapak alli yachashka kanapakmi

Kaytaka rurasha nishpalla rurana

**¿Imatak  
sinchi muyu?**

- ▶ Mana jawalla lanchawan unkurin.
- ▶ Lancha japikpika, lanchata apakkuna mana yuraman yaykuy tukunkuna shinallatak manchakunapish mana wiñarín, lanchata wiñachikpish mana wiñarín.
- ▶ Chay muyukunaka mana fungicidakunata minishtinchu, ama kipata japichun nishpaka churanallami.

**¿Imashinatak alli  
muyuka paktan?**

Chaymanta jamutankapakka yuyarina tukumun chay muyuka candadowan wishkashka shina kakta shina-pish lanchata apakkunaka mana llaveta pasknakapak charinkunachu. Chaymantami, lanchata apakkunaka mana manchata wiñachi tukunkuna, ni papa yura washakunapi mana tiyarinchu lanchata wiñachinkapak shinallatak wañushpami tukurin.

**¿Imashinamanta chay  
sinchi muyuta jawalla  
unkuy japi tukunchu?**

- ▶ Chay sinchi muyutaka mana candadota paskay tukunkakunachu.
- ▶ Lanchachaka waranka warankami wiñarín shinaka ima pachapish shuktak shina muyukunata wiñachishpaka unkuchita ushankakunami.
- ▶ Sinchi muyukuna kachunka fungicidakunata churana.
- ▶ Ashka watakuna washami sinchi muyukunaka mana sinchi kay tukuns.

**¿Mayjan muyukunaka  
sinchi kashpaka  
lancha japikpipi mana  
unkurin, kipataka  
jawalla unkurinllami.  
¿Imamanta chashna  
tukun?**

Rikushun imami tukun:

1. Shuk muyukunaka shuk llaktapi tarpushpaka sin-chimi tukun
  - ▶ Lanchata apakkunaka mana jawalla yuraman yaykuy tukun (yuyarina ima candado shinallatak llave kashkata) ashkakunami wañunkuna (Yurak aujukunakunawan rikuchishka shina kan, Yachayruray 3). Shinashpaka, ashalla lanchata apakkunami yaykunata ushankuna unkuchinkapakka (chay lanchata apakkunaka puka awjakunakunawanmi rikuchishka).

- ▶ Muyu kuanilla yaykushka kashpaka mana ashka muyukuna tiyanchu chaymantami ashalla tarpushkakuna tiyan. Chaymantaka, tukuy unkuuya apamukkunami chayashpa wañunllakuna.
2. Muyutaka tarpukkuna purakunarakmi fukuchita kallarinkuna chaypimi punta yurakuna unkushka rikurin.
    - ▶ Chay muyukuna alli fukushka kakpika ashtawanmi tarpuya kallarinkuna.
    - ▶ Ashalla espora kakpipish kunanka jawalla unkuchi tukunllami ashka yurakunapika. Shinashpaka rikuri kallarini tarpushka ukupi ashka unkushka yurakuna.
    - ▶ Chay yurakunamanta manchakunaka kunanka wiñachi esporakunata wiñachi tukunmi shuktak alli yurakunata unkuchinkapak.
  3. Ashtawan chay muyukuna tarpurishpaka ña mana sinchi muyukuna kanchu
    - ▶ Tarpushkakuna mirarishka, shinaka kunanka tukuy lanchata apakkunami unkuchi tukunkuna chay yuritakunata. Chaymanta, sinchi muyuka ña mana sinchi kanchu.

Mana sinchi yurakuna kay tukun lancha ashtawan mirarishkamanta. Papa yuraka mana cambiarin, ashtawan panakakuna mirarishkallami.

Muyukuna ña sinchi kanata sakishpaka kipataka tukuy tukunmi kutinllatak sinchi muyu mana kashpaka mana sinchi muyu.



## Yachashun imamanta mayjan muyukunaka unkuyp japikpi mana unku, kipataka jawalla unkuñllami

Rurasha nishpalla (Kay pankatapish yachakukkunaman kuy tukunkichik)

**Inmunes ninkuna unkuymanta jarkariklla muyukunata**

### ¿Imamanta mana unkurin jarkariklla sinchi muyu?

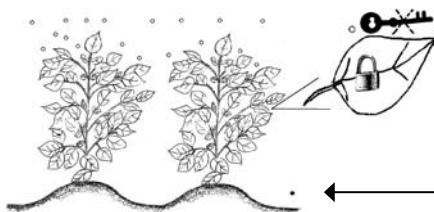
Yurakunapak jarkarinaka shuk candado shinami lanchata apakkunaka lleve shinami kan shinapish mana jawalla pashakanachu. Lanchata apakkuna mana alli llaveta charishpaka mana paskanachu, chaymantami mana unku.

### ¿Kutin imamanta shuk pachakuna washka jawalla unkuñkuna?

Chayta alli jamutankapakkarikushun katik killkashkata.

#### 1. Muyuka shuk llaktapi tapushka

**shinaka sinchimi kan.** Ashka lanchata apakkunami mana unkuichi tukunkuna mana alli llavekunata charishkamanta.



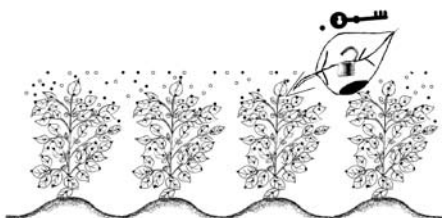
Lanchata apakkunaka mana wiñachi tukunchu manchakuna ni lancha wiñachikkunatapish.

Shuk lanchata apakka alli llaveta chari tukun candadota paskankapak, ashalla yurakuna tiyashkamantaka, pampaman urmashpa wañunllakunami.

#### 2. Muyukunaka

**tarpukunallamantatakmi mirarin shinami kallarik yurakuna unkuishka rikurin.**

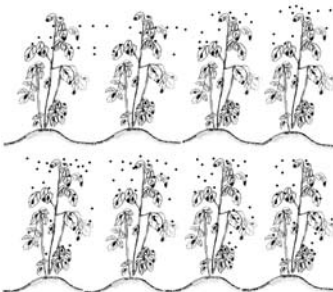
Chay unkuichi tukuyypak lanchata apakkunaka jawalla yurakunapi urmashpa manchakunata shinallatak wiñachikkunata churay tukunllami. Shuk mancha wiñaripika tukuy lanchata apakkunami alli sinchi muyukunata unkuichi tukunkuna.



Lanchata apakkunaka manchakunata shinallatak wiñachikkuna ruray tukunmi.

#### 3. Muyukunaka mirarishpa katin shinallatak ña ama sinchiyashpa katinchu.

Ashka lanchata apakkunami unkuichi tukunkuna alli sinchi muyukunata.



**Sinchi muyukuna mana shinchi muyukunapish tukunmi lanchata apakkuna shukshinaman tukushpa mirarishkamanta. Papa yurakunaka mana shushina tukunkunachu, mirarinallatami mirarishkakuna.**

## Tukuchinkapak ruraykuna

### **Yachanata ashallayachishka**

Kay rimashkakunamantami yachana yuyaykunata sinchiyachinkapak ashallayachishun:

- ▶ Imatak kan sinchi muyu shinallatak mana sinchi muyu.
- ▶ Imashinatak shuktakyachin sinchi muyumanta mana sinchi muyumantapish.
- ▶ Imalla allikuna tiyashka sinchi muyukunata charikpika lanchamanta jarkankapak.
- ▶ (Paktashpa) Imatak sinchi jarkariklla muyu, imamantatak mana sinchi muyu tukuy tukun. Kaypakka kushka rikcha pankakunata rikunallami. Chay pachallatami rikuna kutichishkakunatapish imatami killkashkakunata rikunkapak kunanlla yachashkawanpish.

### **Tukuchinkapak yachay rikuy**

**Kay yachay rikuytaka ruranatakmi.** Yachana yuyaykuna paktashkata yachapakpakka yachakkunamanmi mañana uraman rikuchishka ruranakunata rurachunkuna:

1. Shuk shuyushkapi ima sinchi shinallatak mana sinchi muyukuna kashkatapish rikuchina, kimsa imashina kakta rikuchishpa shinallatak alli sinchi muyukunaka imashina yanapan lanchamanta jarkarinapak.
2. Lanchamanta rikushpa rikuchina shuk tablapi imashinalla kakta shinallatak llaktapi tiyak muyukunaka mashna alli kashkatapish.
3. Paktashpa. Tantarishkapak ñawpakpi rikuchina imatak kan sinchi muyu shinallatak imamanta mana sinchi tukushpa unkuri tukun, ruranapi rikuchishkata katishpa chaytaka rurana kanchik.

### **Rurasha nishpallami kay yachay rikuytaka rurana.**

Minishtirikpika yachakkunata mashnata yachashkata rikuna tukun chaypakka japitukunmi panka 79 manta tapuykunata. Chay washallatakmi alli kutichishkakunata willana kan chaymanta yachakukkunawan rimanakuna,

**Kay kamuta  
rurakkunaman  
yanapankapak**

Ay yachanamanta yachakukkuna imatami yuyanta tapuna. Kipataka kay tapuykunata rurana Minishtirinchu yachana sinchi muyumanta shinallatak mana sinchi muyumantapish ¿Imapak?:

- ▶ ¿Ima llakikunata tarirkankichik?
- ▶ ¿Pachakunaka paktachu karka?
- ▶ ¿Rurankapakka pachakuna paktachu karka?

## TAPUYKUNA

1. ¿Imatak mana sinchi muyukuna?
  - (a) Shuk muyu ashkata unkuriko
  - (b) Shuk muyu uni pachakunata tarpunalla
  - (c) Mana yachani
  
2. ¿Imatak sinchi muyu?
  - (a) Chayka ratu wiñaklla muyumi
  - (b) Ashallata unkurik muyu
  - (c) Mana yachani
  
3. ¿Kimsa imashinakunatak rikuchin muyukuna lanchamanta jarkarik sinchi kaktaka?
  - (a) Mana ashka lancha wiñachikkunata yaykukta sakik, manchakunapish mana utka mirarin, ni mana kuta butukuna shina mana wiñakta sakinchu
  - (b) Jatun yura kana, ashka sapikunata charik
  - (c) Mana yachani
  
4. ¿Ima allikunatak tiyan lanchamana jarkarik sinchi muyukunata charinaka?
  - (a) Ashka pukun alli chanipi jatunkapak
  - (b) Ashalla fungicidakunata churana shinallatak mana pukunka nishpa mana sustarinachu
  - (c) Mana yachani
  
5. (Paktashpa) ¿Imatak sinchi jarkarik muyu?
  - (a) Ashalla fertilizanteta minishtik muyu
  - (b) Mana yura uchillaywan unkurik muyu
  - (c) Mana yachani
  
6. (Paktashpa) ¿Imanishpatak sinchi muyukuna kashkawan ña mana sinchi muyukuna tukun?
  - (a) Lancha ña ashtawan japishkamanta
  - (b) Muyukunata shukshinata rurashkamanta
  - (c) Mana yachani

**Alli kutichishkaku-      1 a; 2 b; 3 a; 4 b; 5 b; 6 a**  
**nata rikuchik**

## ■ Yachana Kamu 4

# Papata ama lancha japichun fungicidata churashpa jarkashun







# Tantanakuyta manarak kallarishpa yanapak allichirinapak

## **Manarak yachay kallarikpi imata minishtinchik**

Kay yachaykunaman yaykunapakka yachana kamu 1, 2 shinallatak 3 tami yachana kanchik.

## **Pachakuna**

Kay tantanakuypakka chusku pachakunata minishtinchik.

## **Kallari rimay**

Lancha japita fungicidakunata churashpa jarkana ashka allimi, chaypakka minishtirinmi yachana ima chakrushka fungicidakuna kakta, randinapak fungicidapak shutita, imashina jampin shinallatak imashina churanapish. Shinallatak riksinami randina wasikunapi tiyak jampikunata. Yachanapishmi mashna alli fungicida kakta, unkuymanta jarkanata shinallatak datos del campotapish, kaykunata: mashna lanchakuna rikurikta tarpushka ukupi shinallatak papa tarpushka kanllamanpish, lancha japina pachakunata, sinchi u mana sinchi muyu kakta, jampishkamanta pacha imashina wiñakta. Kay yuyaykunami ashka alli kan ima fungicidata churanata yuyarinkapak shinallatakmi mashna kutin jampinamanta rimashun kay yachanapika.

## **Paktaykuna**

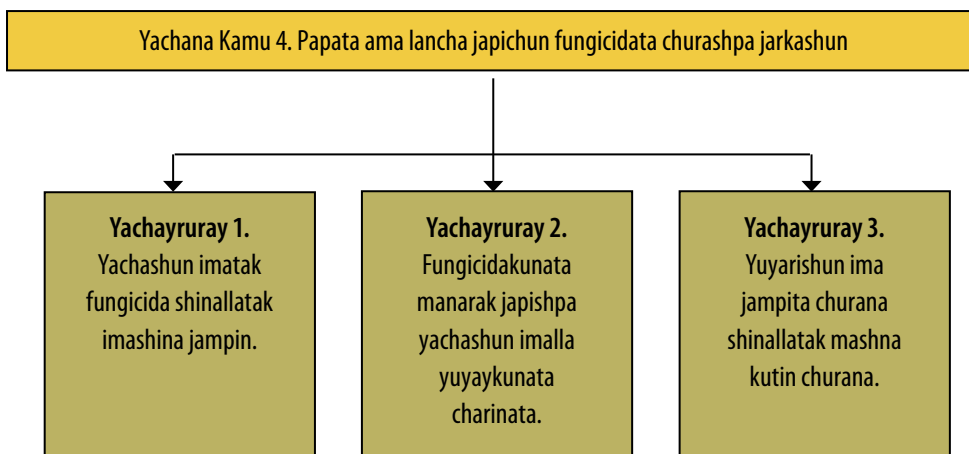
Kay yachanata tukuchishka kipaka yachakukunaka kaykunatami ruray ushankakuna:

1. Shuk rikuchita rikuchishpa, nina ima fungicida kashkata.
2. Rikuna imashina chakrushka jampikunata, rantina shuti, imashina jampin (karkak mana kashpaka kampik fungicida kashkata) shinallatak imashina churanata ishki fungicidakunawan, ima kashkata rikuchishpa.
3. Kay yachanapi kushka fungicidakunamanta rikuchik pankapi rikuna imashina chakrushka kakta, rantina shutikuna, imashina unkuymanta jampik kashkata, shinallatak jampinapak imashina chakruna kashkata.
4. Tantanakushka ñawpakpi rikuchina ima yuyaykunata charinata manarak jampikunata churashpa: mashna alli kakta, lanchata jarkakta shinallatak datos del campomantapish (mashna lancha tarpushka

ukuman shinallatak kanllaman tiyan, ima pachakunapi mirarin, ima papakunatak jarkarin, imashina wiñan jampishkamanta pacha).

5. Ima jampiwana jampinata yuyarina shinallatak mashna kutin churanamantapish, kay yachanapi rikuchishka yuyaykunawan rikuchi tukunkallami.

### Yachana pankaka kashnami allichishka



### Yanapak allirinapak

1. Allimanta kay killkata rikuna kan
2. Yachayruray 1, 2 shinallatak 3 pi nikuk minishtirishkakunata mashkana.
3. Rikcha killkakunata japina kay pankakunamanta 90, 93, 95, 98, 106, 107 shinallatak 137manta 142kama (Tantachishka 2) (chay rikcha pankakunaka tukuyapak kana kan).
4. Paktashpaka. Minishtirikpika yachakukkuna yachashkata rikuchi tukunmi chaypakka allichinami shuktaka yachayta kallarinapak shinallatak shuktaktaka tukuchinkapak (panka 113manta, 114kama shinallatak Tantachishka 1).
5. Wayrakun pambata mashkashpa tantanakuna Yachayruray 1ta rurankapak mana kashpaka wichkashka ukupimi rurana kanchik 2 – 3 Yachayruray rikuchikushkata.

# Yachakukkunawan tantanakuy pachakunapi ruranakuna

## Ñawpa yachana kamupi yachanata kutin rikuna

Kay tantakuytaka yanapak pi kashkata willashpa shinallatak ima jawamanta yachakrishkata willashpami kallarina kan. Kipami kay rimaykuna jawa tukuykuna rimanakuna kanchik.

- ▶ Imatak unkuyta rikuchikka.
- ▶ Pankakunapi, yuyupi shinallatak muyukunapi imashina kallarín.
- ▶ Mayjantak lanchata wiñachikka.
- ▶ Imatak shinallatak imata ruran lanchata apakkuna.
- ▶ Imashina lancha kallarín- tukurin.
- ▶ Maymanta lanchaka shamun.
- ▶ Lanchaka ima pachakunapitak mirarin.
- ▶ Sinchi muyukuna shinallatak mana sinchi muyukunapish imashinalla kakta.
- ▶ Sinchi muyukunawanka ima allikunallatak tiyan.

Kaypakka ñawpaman yachana kushka rikcha pankakunapimi rikuna.

## Kallarinkapak yachashkakunata rikuchi

**Kay yachay rikuytaka ruranatakmi.** Kay tapuykunatami churana kanchik yachakukkuna kutichinata ushachun. Paykunapak yachashkakunatapish japina, chay pachallatak, rikuna mashnatami yachak kashkata:

- ▶ ¿Imapak alli fungicidakuna?
- ▶ ¿Chay jampika imata ruran? ¿Imatak jarkak fungicidakuna? ¿Imataka jampik fungicida?
- ▶ ¿Imatak jatuna shutika? ¿Imatak chakrushka?
- ▶ ¿Imatak jampita chakrunaka?
- ▶ ¿Imatak jarkana? ¿Imashinatak lanchata jarkashun?
- ▶ ¿Imalla datos del campotashi charina kanchik manarak jampikunata churashpa?

Kutichiskakunaka jatun pankapimi killkashka kana kan. Yachana ashallayachiskapi (panka 111) kay kutichishkakunata kutin japinami chaywan sinchiyachinkapak rimanakunami yachakukkuna riksishka shinallatak shuktakkunaka mushuk kashkata rikuchishpa.

**Rurasha nishpallami kay yachay rikuchitaka rurana.**

Yachakukkuna yachashkataka japitukunchikmi panka 113, 114 manta tapuykunawan, chayllatakmí yachanata tukuchiska kipaka tapuna. Rikuchik allichishakaka Tantachishka 1 pi churashka.

**Yachakukkuna imata shuyankuna**

Yachakukkuna imata kay yachanamanta shuyashkata yachankapakka kay tapuykunatami churana ¿imapak kay punlla tantanakunchik?

Kipami yachakuk mashikunaka kay kamupi imata kachakrishkataka yachak chayana kan, jatun pankakunapi killkashpa rikuchi tukunkichik mana kashpaka tarjetakunapipish killkay tukunchik

Minishtirintakmi kay yachanapi mana rimanakunataka mana rikushunchu nishpa, churashunlla:

- ▶ Imashina fungicidata churana.
- ▶ Jampikuna apana bombakuna allichinamanta.
- ▶ Fungicidakunamanta jarkarina churanakunamanta.
- ▶ Maykamatak fungicidaka mapayachi tukun.
- ▶ Imashina runaman wakllichi kallarinamanta.

## Yachayruray 1. Yachashun imatak fungicida shinallatak imashina jampin

**Paktaykuna** Kay yachaykunata tukuchishka kipaka yachakukkunaka paktankami kaykunata rikuchinata:

1. Rimashpalla rikuchinka imatak fungicida kakta, shuk rikuchitapish rurashpa.
2. Imashina chakrushka kakta rikunka, rantinapak ima shutilla fungicida kakta, imashina jampin shinallatak ishki fungicidakunallapipish rikuchina ima kashkata.
3. Fungicidakunata willak pankapi rikuna mayjan alli jampikunata, ima shuti, imashina jampina shinallatak mashnata churanatami yachana tukun.

- Minishtirikun**
- ▶ 4 chusku cartulina, shuyuna shuk fungicida churanata, shuk chuspi, shuk mana alli kiwa shinallatak shuk lancha (shuk shuyullata shuklla cartulinapi).
  - ▶ Wira shinallatak shuk pastilla imata tukukta rikunkapak.
  - ▶ Algodón shinallatak goma chay lancha wiñachikta rikuchinkapak.
  - ▶ Uchilla yurak papel muyuchishkakuna lancha apakta rikuchinkapak.
  - ▶ Celofán puka papel chayka rikuchichun pankapi tiyarik fungicida kashkata.
  - ▶ Celofán ankas pankaka rikuchinka jampik fungicidata.
  - ▶ Shuyunapak minishtirishkakuna: pankakuna shinallatak shuyuna kashpikunapish.
  - ▶ Shuk kunpitaypish tiyanami kan alli shuyupak.
  - ▶ Cartulina, goma shinallatak fitinapapakpish. Shuk papa pankata rurana 40 cm sunita, shuk sánduche shinatami rurana 5cm pi pitina. Kay shuyushkata rikuy tukunki:



Kimsa mana kashkapaka pishka tantanakushkakuna kaytami charina kan:

- ▶ Kimsa jarkak fugicidakuna shinallatak 3 jampik fungicidakunata. Chaypakka kaykunami charina:
  - » Ishkillapish shuktak shuktak shutikunawan fungicidakuna shinapish chay fungicidakunallatakmi kana kan.
  - » Ishkillapish shuktak shina fungicidakunawan.
  - » Shukllapish jarkak fungicida shinallatak shukllapish jampik fungicida.

### **Imashina rurana**

1. Kay ruraytaka ashka wayra tiyanpimi rurana wasikunamanta karuyachishpa. Mana tiyachinakuna jawapi ruranchu ashatawankarin pampapimi rurana.
2. Yachakukkunawan ima yuyaywan kay rurayta rurakushkamanta willana.
3. Kimsa u pishka uchilla tantanakuykunapi fungicidakunata kuna (Mirachishka yuyay 1). Chay uchilla tantanakushkakunapika shukllapish killkana ñawirinata yachakmi tiyana kan.
4. Chay tantanakuykunamanka pankaka 90 manta llukchishka rikcha pankakunata kuna kan.

**Mirachishka yuyay 1****Kaykunamantami jarkarina:**

- Chay jampi wakichinataka chushaklla kakkipash mana kipa-taka imapak minishtirincho, mayllakpipish chay fungicidaka sakirinkallami chaymanta kikinta wakllichi tukunmi, ñatak wakichishpa kutin imapak japikunkichikman.
- Chay jampi apamuk fundaka alli wichkashka kana. Ama jicharichunka shuk achiklla plástico fundapimi churana.
- Guantesta churana.
- Mana imata mikuna fungicidakunawan yachay pachakunapi
- Mana wawakuna kuchuyayta sakikunachu shinallatak wasi ukupi kausak wiwakunatapish.
- Rurayta tukuchishpaka makikunata allita mayllana.





## Kuska 1

### Fungicidakuna ima kashkata yachashunchik

1. Kay rukuchipak chusku munak mashikunataka mañana.
2. Chay chusku mashikunaman kunami shuyushka fungicida fundakuna, lancha, mapa kiwa shinallatak shuk chuspita.
3. Imamanta rikuchikrishkata willana: Papa tarpushkapi parlanakunkakunami shuk lancha, chuspi shinallatak mapa kiwa. Ñapish shuk fungicida jampi rikurishpaka lanchata wañuchin, kayshukunataka mana imata ruran.
4. Tantanakushpa rimanakuna shinallatak paykunallawantak fungicida jampi ima kashkata yuyayta llukchina kan.

## 5. Kuska 2

### **Riksishunchik katunkapak ima shutikunallatak churankuna shinallatak jarkak jampikuna imalla kashkakanata**

1. Yachakukkunaman kay tapuykunata rurana:
  - » ¿Imapakllapish cementota japishkankichik?
  - » ¿Mashna shutilla cementokunata riksinkichikchu?
  - » ¿Cementollatak kashka jawa shukwan chayshukwan chikanchu kan?
2. Chay tapuykunallatak churashpa katina shinapish shuktak rikuchikunawan, churashunlla: antawakunapak aceitewan.
3. Yachakukkunaman mañana chay shina shuktak rikuchikunata churachun (Mirachishka yuyay 2)
4. Tantanakushpa rimanakuna ima shutikunallatak churankuna shinallatak jarkak jampikuna imalla kashkakanata jawa.
5. Yachakukkunaman rikuchun mañana fungicida etiquetakunapi katunkapak shutilla churakkuna kashka shinallatak imallawan chakrushkatapish.
6. Kay killkakunawan yachakukkunamanka mañana rikcha killkakunata juntachichun (panka 90).
7. Kaykunata alli rikuchina:
  - » Jampi fungicidakuna shuktak shuktak shutikunawan tiyanmi shinapish chay shinallatak chakrushka kutakunatami charin.
  - » Mayjan jampikunaka shuklla chakrushkatami charin. Shuktakkunaka ishki u kimsa shina kutakunawan chakrushkami kan.
8. Yachakukkunaman rikcha pankakunata kuna (panka 93) shutikuna ima nisha nishkata shinallatak ima kashkatapish achikyachunkuna.

#### **Mirachishka yuyay 2**

Mayjan yachakukkunaka mikuykunapak shutiwan mana kashpaka runapa jampikunapak shutiwan llankashun nikpika, yuyachina kanchik fungicidakunaka wañuchik jayak kashkata chaymanta mana mikuykunapak shutiwan shinallatak runapak jampikunapak shutikunwanka llankana kanchik.



## Fungicidakuna ima kashkata shinallatak imata rurak kashkata yachashunchik

Kay pankaka yachakukkunamanmi kuna kan

**Fungicidakuna** Hongokunamanta wacharishka unkuykunata jampik wañuchik jayak jampikunami kan.

**Rantina shuti** Katunapak churashka shuti.

**Ima kutakunatak charin** Wañuchik jayak jampipak shutimi kan.



Randina shutika: MATATIZÓN

Ima jayak kutakunawan chakrushka:  
Mancozeb

- Mirachishka yuyay**
- ▶ Shuktak shukta shutiwan jampikunapish tiyanmi, chay jampika chayllatakmi kan.
  - ▶ Mayjan jampika ishki shina jampikunawan chakrushkami. Kayshukkunaka ishki mana kashpaka ashtawan jampikunawan chakrushkakunami tiyan.

### **Kuska 3**

#### **Yachashunchik imatak kan fungicidakunata chakrui**

1. Yakumanta ishki shina rikuchita rikuchina: razuta shinallatak yaku (razu – yaku).
2. Yachakukkunaman tapuna razuwan yakuwan chikan kashkata.
3. Chaykunatami chimpapurashpa rikuchina chay fungicidakunapish kuta kay tukun mana kashpaka yaku shina chuyapish kay tukunllami.
4. Yachakukkunaman mañana shuktak chay shina rikuchikunata churachun (Mirachishka yuyay 2).
5. Tantanakushpa rimanakuna imatak kan fungicidakunata chakrui.
6. Yachakukunawan rimanakuna ima allikuna tiyan shinallatak imalla mana allikuna tiyan chay ishki shina chakuykunamanta.
7. Yachakukkunaman kushka fungicidakuna imalla jampikunawan chakrushka kashkata rikushpa pankaka 90pi killkachunkuna mañan kanchik.
8. Yachakukkunaman rikcha pankakunata kuna (panka 95) fungicidakuna chakui ima nisha nishkata shinallatak ima kashkatapish achikyachunkuna.



## Yachashun imatak jampikunata chakruna

Kay pankaka yachakukkunamanmi kuna kan

- ▶ Imashinami fungicidakuna tiyan: Shukka kankunami jarkaka mana kashpaka jampik (jarkak – jampi).
- ▶ Chay kuta fungicidakunaka ashka llakichikmi kan. Chakrukushpaka ashnayta wayrapi aysay tukunchikmi shinallatak ama tanquepi sakirichunka ashkatamami kuyuchina kan. Shinapish, kuta fungicidakunatami ashalla chanipi ranti tukunchik yaku fungicidakunaka ashawan kullki chanimi kan.

Kuta fungicida



Yaku fungicida



## 9. Kuska 4

### Yachashun fungicidakuna ima rurakta.

1. Kayta rurankapakka kimsa mashikunapak yanapayta mañana:
 

Mama Esperanzaka ishki wawakunatami charin, Lucho shinallatak José wawakunata. Luchoka lluki chaki waktarishkami shinallatak Josétaka ujumi japishka. Esperanzaka yuyarinmi Luchotaka wirawan kampinata shinallatak Josétaka pastillakunawan jampinata. Wirata churakukpika Luchoka ninmi shuyay rikusha, mamaka ninmi kayka aycha jawallatami jampin. Luchoman pastillata kushpaka ninmi kayka aycha ukutami jampin.
2. Tantanakushpa rimanakuna fungicida ima rurakta yuyayta llukchina.
3. Rikuchina imami karka jarkak fungicida shinallatak jampik fungicidapish cartulinawan rurashka papa pankapi, chay panka celofánwan, chay yurak pilluchishka uchilla papelkunawan mana kashpaka espuma sintéticawan, shinallatak algodónwan, kayta rurankapak kashna ruray:
  - » Chay puka panka celofánwanka pilluchina cartulinawan rurashka pankata kayka jarkak fungicidawanmi nishpa. Uchilla pilluchishka pankakunawan mana kashpaka espumawanka rikuchinami lanchata apamuk kashkata. Lanchata apak chay fungicida churashkapi chayashpaka wañunllami nishpa rikuchina.
  - » Chay panka ukupi algodónata churashpaka ninami lanchata wiñachikmi papa yuraman yaykushka. Chay jawapika puka panka celofánta pilluchina chaymantaka ninami kay jarkak fungicidaka mana imata ruran yurapi ña lancha wiñakukpika. Jarkak fungicidakunataka kay pachakunapimi churana nishpa ashka yuyaypi kana.
    - › Mana ashka tamyakuy punllakunapi.
    - › Manarak manchakuna yurapi rikurikpita.

- » Ankas panka celofáwan sunita panka washapi churana chaymantaka rikuchina kay jampik fungicidami nishpa chayka lancha wiñakukta wañuchi tukunmi. Jmapik fungicidakunataka kay pachakunapimi churana nishpa ashka yuyaypi kana:
  - › Ashka tamyakuy punllakunapio.
  - › Manchakuna pankakunapi rikurishka washa.

4. Tantanakushpa rurana imatak jarkak shinallatak jampik fungicidakuna, kay uraman churashkapi juntachina:

Imashinalla	Jarkak fungicida	Jampik fungicida
¿Ima shuktak shutiwan riksinchik?		
¿Imashinatak yurapika tukun?		
¿Yurapi kak lanchta wañuchinchu?		
¿Ima pachapitak churana?		
¿Tamy mayllankachu?		
¿Mana imata ruray tukunka?		
Chani		

5. Yachakukkunata mañana rikuchunkuna imashina chay jampikuna rurak kashkata, chaymantaka rikcha pankakunapi juntachichun mañana (panka 90).
6. Rikuchina tawka jampik fungicidakunami jarkak fungicidakunawan chakrushka shamun.
7. Shuyuna ruranata kuna kipataka shuyushpa mishanakuyta rurana jampik fungicidakunata shinallatak jampik fungicidakunatapish shuyushpa rikuchichunkuna. Chaymantaka ashtawan alli shuyushkata akllashpaka kunpitay kuna.
8. Yachakukkunaman rikcha pankakunata (panka 98) chaywanka shimikuna ima kashkata achikyachunkuna.

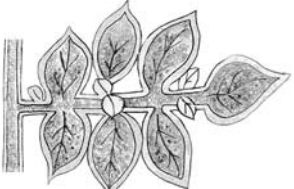



## Yachashun imatak fungicidakunaka ruran

Kay pankataka yachakuk mashikunaman kuna kan

Fungicida jampi yurapi imatatak ruran chaymi nishka modo de acción. Shukkunaka jarkanapak fungicidakuna kan shuktakkuna lancha japishkata jampinapak

### Jarkak shinallatak jampik fungicidakuna imashinalla kakta rikuchi

	Jarkak fungicida	Jampik fungicida
¿Ima shuktak shutiwan riksinchik?	Jarkakkuna	Jampikkuna
¿Imashina kay fungicidakuna yurapi paktachin?	Panka jawapi japirishpa sakirin shinallatak mana yuraman yaykurin 	Yuraman yaykurin shinallatak chay ukupi purin 
¿Yura ukupi kak kurukunatachu wañuchinka?	Mana, yuramanta kanllaman kak unkuynallatami wañuchin, lancha ashtawan miraktaka mana jarkanchus.	Ari, wañuchi tukunmi yura ukupi kak unkuynata. Lancha wiñaktapish mana sakinchu.
¿Ima pachakunapitak churana?	<ul style="list-style-type: none"> <li>• Mana ashkata tamyakuy punllakunapio.</li> <li>• Manarak lancha japikpia</li> </ul>	<ul style="list-style-type: none"> <li>• Ashka tamyay tiyay punllakunapi</li> <li>• Lancha rikurishka washa</li> </ul>
¿Tamyay mayllankachu?	Ari	Mana
¿Alli kashkawan mana imata ruray tukunkachu?	Mana	Ari, mayjan fungicidakuna
Chani	Ashalla	Ashka

**Jampik fungicidakunami allitak kan jarkak fungicidakunatapish yalli shinapish ashka kullkimi valin, shinallatak may pachakunapika mana imata ruray tukunchu.**



## Kuska 5

### Yachashun fungicidakuna imashina apanata rikuchikmanta

1. Yachakukkunaman kuna fungicidakunata imashina apanata rikuchik rikcha pankakunata (Tantachishka 2), chay pankawanka jampikunata rantinaman rinkapakpish yanapankami nishpa willana kanchik (Mirachishka yuyay 3).
2. Yachakkunata amañachina fungicidakunata imashina apana fankata juntachinata yachachunkuna shinatallatak chay pachallatak mañana chay pankata juntachichunkuna katunapak shuti, chakrushka jampi, imata rurak shinallatak mashnata churana lancha unkuymanta jarkankapak.

#### Mirachishka yuyay 3

Killkana ñawirinata mana yachak mashikuna fungicidakunata rantishun nikpika ñawirinata killkanata yachak mashiwan ushashpaka rina kan fungicida jampikunata rantinapi yanapachun.

## **Yachayruray 2. Yachashunchik imalla yuyaykunata charina kanchik manarak chay fungicidakunata churashpa**

**Paktaykuna** Kay yachayta tukuchishka washaka yachakukka tantanakushkapak ñawpakpi rikuchi tukunkami kay yuyaykunata charinata manarak fungicidakunata churashpa: mashna alli kashkata, imashina lancha ama papakunata japichun jarkanata shinallatak datos de campo japinamantapish (tarpushkapak muyuntikpi shinallatak tarpushka ukupipish mashna lancha tiyakta, punllakuna imashina kakta, sinchi – mana sinchi papakuna, yurakuna imashina wiñakukta shinallatak fungicida churashka punllamanta mashna punllakuna yallishkatapish).

**Minishtirikuna** ▶ Jatun pankakuna shinallatak jatun killkana kaspi marcadorkuna.

**Imashina rurana**

1. Imamanta kay rurayta rurakushkamanta yachakukkunaman willana kanchik.
2. Jatun pankata charina chaypika killkashpa katinalla imallata rimashkakunata. Kay rimanakuykunata rukuchishka washaka Panka 106, 107 pi rikuchishka shina shuk cuadrota rurashpami tukuchina kanchik.
3. Yachakukkunawan shuyuna imashina lancha wiñarik kashkata (Yachana 2 pankas 53 rikuna). Kay shuyushkataka minishtishunmi shamuk rimaykunapakpish.

### **Kuska 1**

#### **Yuyarishun fungicidakuna mashna alli kashkata**

1. Yachayruray 1, Kuska 4-ta yuyarina. Shuyushpa ashata rimanakuna jarkak shinallatak jampik fungicidakuna yurapi churashka washa ima tukukta. Kaytaka imanakuytaka chimpapurashpa rikuna lancha imashina wiñarikta:

- » Jarkak fungicidakunaka kutakunata shina pankakunapi tiyarishkakunallatami wañuchin mana manchakunataka jarkanchu.
  - » Jampik fungicidakunaka yuraman yaykurishka hongokunata wañuchinmi. Wiñarikuk manachakunata wañuchinmi.
2. Tantanakushpa rimanakuna mayjan fungicidatak ashtawan alli kanka nishpa. Manarak fungicidakunata churashpa yuyarinami kanchik mayjan fungicidatak pakta kashkata nishpa willana kanchik.

## Kuska 2

### **Riksishun imamantatak yurakunata lancha ama japichun jarkana allí kakta**

1. Rikuchina shuk metal jawapi óxido ima tukukta shinallatak shuyuna pintura imata ruraktapish.
2. Yachakukkunawan rimanakuna imapak shuk metalta pintanaka minishtirin ama oxidachun. Wawakunatapish uchillarak kashpa vacunanchikmi paykunata ama unkuy japichun nina.
3. Chay shina rikuchikunata churachun yachakukkunamanpish mañana.
4. Imashina chay lancha unkuy wiñarik kashkata rikuchihspa allita yuyachina chay jarkak fungicidakunami pankakunaman ama lancha chayachun jarkak kashkata.
5. Tantanakushpa rimanakakuna imamantatak yurakunata ama lancha japichun jarkana alli kashkamanta.

## Kuska 3

### **Riksichun mayjanlla dato de campota charina kanchik manarak fungicidakunata churashpa.**

1. Kay datoskunatami yachakukkunawan rimanakunakan:

- a. Tarpushkapak muyuntikpi shinallatak tarpushka ukupipish mashna lancha tiyakta
- b. Punllakuna imashina kakta
- c. Sinchi – mana sinchi muyukuna
- d. Yurakuna imashina wiñakun
- e. Fungicida churashka punllamanta mashna punllakuna yallishkata.

**a. Tarpushkapak muyuntikpi shinallatak tarpushkapak ukupipish mashna lancha tiyakta**

- » Shuk jatun panakta chawpina.
- » Chay chawpishka pankakunapika cuadrokunata shuyuna papa tarpushkakunata rikuchishpa shinallatak chay cuadrokunapak chawpipika shuk llaktatapish shuyuna.
- » Ishki shuyushka llaktakunataka shutikunata churachun nishpa yachakukkunaman mañana.
- » Allpapi llankak (Juan) mashi chay ishki llaktakunapi papa tarpushkata charin nishpa rikuchina. Chay ishki tarpushkakunaka kaykunami nishpa shuyuta rikuchina.
- » Mashi Juanpak kuchilla tarpushkakunapi shinallatak Juanpak tarpushkapipish lancha ña japikushka manchakunata shuyuna. Shuk niki llaktapika ashalla manchakunata shuyuna, ishki niki llaktapimi ashka manchakunata shuyuna.
- » Yachakukunawan rikuna Juanka mayjan llaktapitak ashtawan fungicidakunata churana kan.
- » Lancha wiñarikukta rikuchishpa allita yuyachina wayrapi esporakuna tiyakpi fungicidata churana kashkata. Kay lanchaka tiyay tukunmi kuchulla tarpushkakunapi, mayjan yurakunapi, sacha yurakunapi shinallatak tarpushka ukumantatak unkushka yurakunapi.

**b. Punllakuna imashina kakta (tanya shinallatak asha junuklla chirilla punllakuna)**

- » Lancha wiñarikukta rikushpami yuyarina imatami tanya shinallatak asha chirilla junuklla pacha kashpish rurak kashkata.

- » Tamia pishka shina ruraykunatami charin:
  - › Yanapan lanchata wiñachikkuna mirarichun.
  - › Manchakunata muyushpa kutakuna shina wiñarichun yanapan.
  - › Unkuyta pankakunamanta sapikunaman apan.
  - › Shuk unkushka yuramanta kayshuk alli yuraman apan tamyawan salarishpa
  - › Jampishka fungicidata panka jawamanta mayllan.
- » Chirilla kunuklla kay pachakunaka yanapanmi manchakuna wiñarichun, Ashtawan junuklla kapika ashtawan utka manchakunaka wiñarín.
- » Yachakukkunawan rimanakuna tamyakuy pachakunapi shinallatak kunuklla kay pachakunapimi ashtawan fungicidata churanamanta, chakishka shinallatak chiri punllakunata yalli.

#### **c. Sinchi – mana sinchi muyukuna**

- » Jatun pankapi shuyuna ishki papa pankakunata, shukpika sinchi muyupak pankata shuktakpikka mana sinchi muyupak pankata.
- » Yachakukkunawan tikra rikuna kimsa yuyaykunata imamantatak sinchi muyukuna shinallatak mana sinchikuna kaktapish (Yachana 3, Panka 66 rikuy).
- » Tantanakushpa rimanakuna imamantak mana sinchi muyuka ashka fungicidata minishtin sinchi muyutapish yalli.
- » Yuyarina ashalla fungicidata churashpaka fukuchinkapak mana ashka kullki minishtirin shinallatak mana pachamamatapish llakichinchik.

#### **d. Yurakuna imashina wiñakun**

- » Shuk jatun pankapimi shuyuna imashina papa fukun (Panka 107).
- » Yachakukkunaman mañana ima pachatak papa wiñakukpi lanchata jarkanapak ashawan alli.

- » Alli rikuchina yurakuna wiñakushparak ashtawan fungicidakunata minishtin. Kay yuyayta achikyachinkapak kashna rikushpami rurana:
  - › Shuk uchilla yura shuyuna.
  - › Jarkak fungicidata churashkami nishpa rikuchina. Chayta rikuchinkapakka shuyushka yurataka pukawan shuyuy tukunkimi.
  - › Rikuchina, yuraka wiñakukpimi mushuk sampikuna shinallatak pankakunapish wiñarikta. Mana imata pintashpa shuyuna chaywanka nina kay yuraka fungicidawan mana lancha unkuymanta jarkashkachu nishpa.
  - › Yachakukkunawan rimanakuna imamanta yurakuna wiñakushparak ashtawan fungicidakunata churachun minishtin.
- » Ñawpaman tarpushkakunapi ña lancha unkuy muyukunata japishka kashpaka kay tarpuypika fungicidakunata churanami nishpa yuyachina. Kaytaka rurana ama murumantak Fitóftoramanta esporakuna yaykuchun jarkankapak.
- » Shinallatak rimanakuyta ruray tukunpishmi jallmaypi ashka allpata churanamanta shinallatak pankakunata pitinamantapish esporakuna ama yuraman chayachun. Lancha imashina wiñarik shuyushkata rikushpa kay jawamantaka rimanakuna.

#### **e. Fungicida churashka punllamanta mashna punllakuna yallishkata**

- » Yachakukkunata tapuna:
  - › ¿Kunan punlla fungicidata churakpika mashna pachakunatak yura jawapi kanka?
  - › ¿Imallatak chay jampishka pankakunatamanta jampita pankamanta anchuchinka?
- » Tantanakushpa rimanakuna jampishka jawapi imatak tamyaka rurana. Tamyaka fungicida churashkata mayllak kashkata yuyarina.
- » Yachakkunawan rimanakuna imamantatak fungicidakunata churasha washa punllakuna imashina kakta rikuna minishtin. Churashunlla:

- › Kanchis punllakuna ñawpakman fungicidakunata churashka kakpi chay pachakunatak tamyá tiyarka, fungicida jampi churashkaka yura pankakunapirak kaypak kan chaymanta mana mana minishtirinchu ashtawan fungicidata churana.
  - › Shinallatak chay pachakunapitak ashka tamyá tiyashka kápkika chay jampi mayllarishkankami. Chaymanta minishtirinmi kutinwan fungicidata churanami tukun.
2. Tukuy yachakukkunaman Panka 106, 107 manta shuk rikcha pankata kuna chaywan rimashkakakunata sinchiyachina.
3. Ñawpakman kushka rikcha pankakunawan yachakukkunawan rimanakuna imamanta lancha wiñarikta:
- » Lancha ukuyta wiñachikta imashinatak yanapan:
    - › Ashka lancha tarpushkapak muyuntikpi shinallatak tarpushka ukupi tiyashpa.
    - › Ashka tamyá punllakuna kakpi
    - › Yalli jawalla muyu mana sinchi muyukuna
    - › Yurakuna kunan sisakukpi shinallatak muyuyay kallarikukpi jallmashkakpi.
  - » Alli pachakuna (shuktakkunawan yanapari tukunmi):
    - › Ashalla lancha tarpushka kanllaman shinallatak ukumanpish.
    - › Tamyá punllakuna
    - › Mana sinchi muyukuna
    - › Yurakuna kunan sisakukpi shinallatak muyuyay kallarikukpi jallmashkakpi.
  - » Mana alli pachakuna:
    - › Ashalla lancha unkuy tarpushka kanllaman shinallatak ukumanpish.
    - › Usya pachakuna
    - › Sinchi muyukuna
    - › Muru ña fukukukpi jallmashkákpi mana ima tukunchu.
4. Yachakukkunawan rimanakuna lanchataka mana ñawpakman ima tukukrikta rikushpa alli jarkaypak nishpa.



## Fungicidakunawan lanchata jarkashunchik

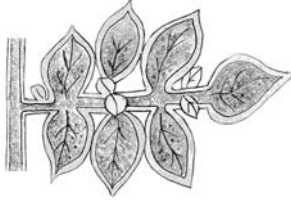
Kay pankataka yachakukkunaman kuna kan

Fungicidakunawan lanchata jarkanapakka kaykunatami yachana:

1. Mashna alli fungicida kakta.
2. Imamanta lanchamanta jarkarinamanta.
3. Datos del campotapish yachanam.

### 1. Fungicida mashna alli kan

Jarkak fungicida



Jampik fungicida



Jampik fungicidakunami ashawan alli jampikuna kan chayshuk jarkak fungicidakunatapish yalli shinapish rantinapakka yalli chanimi shinallatak mana alli fungicidapish kay tukun.







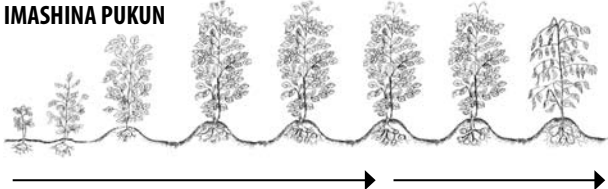
### 2. Imamanta lanchamanta jarkarina

- ▶ Chay lanchaka utkashpa llakichik shuk unkuymi: japikpika shuk kanchisripi ñami tarpushkata chinkachinllami.
- ▶ Chaymanta lanchata wiñachi tukuypak pachakuna karpika utkashpami fungicidakunata churana kanchik manarak manchakuna yurakunapi rikurikpi.





**3. Manarak fungicidakunawan jampishpa kay datos del campotami charina kanchik**

<p><b>A. Tarpushkapak muyuntikpi shinallatak tarpushka ukupipish mashna lancha tiyakta</b></p>	<p>Ashka lanchan</p>  <p>Ashtawan fungicidata churana</p>	<p>Mana ashka lancha</p>  <p>Ashalla fungicidata churana</p>
<p><b>B. Punllakuna imashina kakta</b></p>	<p>Tamiakuy shinallatak chirilla kay pacha</p>  <p>Ashtawan fungicidata churana</p>	<p>Chakishka chiri punlla</p>  <p>Ashalla fungicidata churana</p>
<p><b>C. Sinchi - mana sinchi muyukuna</b></p>	<p>Mana sinchi muyumanta yura</p>  <p>Ashtawan jampita churana</p>	<p>Sinchi muyumanta yura</p>  <p>Ashalla jampi churanas</p>
<p><b>D. Yurakuna imashina wiñakun</b></p>	<p><b>PAPA IMASHINA PUKUN</b></p>  <p>Sisakuy pacha utka minishtirikpi Pukukupki Ashtawan fungicida churana</p> <ul style="list-style-type: none"> <li>• Pukushka pachapi ashalla jampita minishtin</li> <li>• Ñawpaman tarpushka papakunapi lancha japishka karpika, ña tukuy pukuypak pachakuna kamami churanaos tubérculos, se debe aplicar fungicida también en las últimas etapas del cultivo.</li> </ul>	
<p><b>E. Fungicida churashka punllamanta mashna punllakuna yallishkata</b></p>	<p>Yachana minishtirinmi mashna punllakunatak fungicida churashkamantaka yallishka shinallatak chay punllakunaka imashina karka, tamyaka fungicidata mayllanllami.</p> <ul style="list-style-type: none"> <li>• Asha punllakuna ñawpaman fungicidata churashka kakpi kipa punllakuna usya kashka karpika pankakunapi fungicida tiyakunkarakmi. Shinaka mana jampina minishtirinchu.</li> <li>• Ñawpalla punllakuna fungicidata churashka kakpi chay kipaka tamy urmashpalla katishka karpika pankakunata mayllashkankami, chaypika minishtirinmi kutinwan jampina.</li> </ul>	

**Yuyari :**

- ▶ Lancha wiñaripak allitak kay pachakuna karpika 5 u 7 punllakuna kipami fungicidakunata churarana.
- ▶ Ashata lancha wiñarinanalla pachakuna karpika 10 u 15 punllakuna kipami fungicidata churana.
- ▶ Mana japipak pachakunapika 21 u 30 punllakunapimi fungicidata churana.

---

## **Yachayruray 3. Ima fungicidata churashun shinallatak mashna kutintak churashun**

---

**Paktaykuna** Kay yachayta tukuchishka washaka yachakukka ima jampiwani jampinatami yachay tukunka shinallatak mashna kutin churanamantapish, kay yachana kamupi rimashka achiklla yuyaykunawan (fungicida mashna alli kakta, jarkarina, tarpushkapak muyuntikpi shinallatak ukumanpish mashna lancha tiyakta, punllakuna imashina kakta, sinchi – mana sinchi muyu, yura imashina wiñakukta shinallatak fungicidata churashka punllamanta mashna punllakuna yallishkata rikuy tukunkallami).

- Minishtirikuna**
- ▶ Ishki jatun papelkuna shinallatak jatun shuyuna kaspi. Chay pankakunapika papa fukuyta shuyuna kanchik (Ñawpa pankata rikuy).
  - ▶ 5 killu cartulinakuna shinallatak 5 ankas cartulinakuna (20x15 cm). Shuk intita chay 2 killu cartulinakunapika shuyuna shinallatak ankas cartulinapika tamyatami shuyuna.
  - ▶ 4 cartulinakunapika shutikunata killkana (40x30 cm).
  - ▶ Yana cartulinapi rurashka 10 “S” killkakuna shinallatak 10 “C” killkakuna. “S” killkakunaka nisha ninmi jampik fungicida shinallatak “C” killkakunaka jarkak fungicidakuna nisha ninmi.
  - ▶ Uchilla papel muyuchishkakuna kaykunaka lanchata wiñachikkunata rikuchinkapak.

- Imashina rurana**
1. Imamantatak kay rurayta rurakushkata yachakukunaman willana kanchik.
  2. Yachakukunaman mañana wiñachichunkuna shuktak shuktak pachakunata, ima jampikunata churanatami rikuchun mañana shinallatak fungicidata mashna kutin churanamantapish rikuchun.

### **Shuk pacha 1**

- » Ishki ciclo papakunata allpa jawapi churana mana kashpaka pirkapi llutana. Shuk cicloka sinchi muyukunawan tarpushkamanta, shinallatak shuktak cicloka mana sinchi muyukunawan tarpushka. Yachakukkuna

- muyukunapak shutikunata cartulinapi jatun killkawan churana churasha nishka shutita.
- » Chay ishki ciclopitak churana chay shinallatak lanchata wiñachikkunata, imashina wiñakukta shinallatak cartulinakunapika inti shinallatak tamyatami shuyuna. Rikuchina chay ishkantik muyukuna 2800 msnm jawapi kashkata. Yachakukkunallatak shuk llaktapak shutita churana.
  - » Yachakukkunamanta mayjankunapish ishki mashi kay ruraypi yanapachun mañana. Tukuykunaman kuna 5 C killkakunata shinallatak S killkakunatapish. Chay killkakunaka jarkak fungicidata (C) shinallatak jampik fungicidata (S) rikuchikmi nishpa rikuchina. Yanapakuk mashikunata mañana chay cartulinakunata ciclo de papapak jawapi churachun fungicidakuna mashna alli kakta yuyarishpa, lanchamanta jarkarinata shinallatak dato del campo ruranatapish yuyarishpa 1 shinallatak 2 ruraypi rikuchishka shina.
  - » Fungicidakunata imashina kakta rikuchita rikushpa kuta fungicidata churanallami yurata jampinkapakka. Chay jampik fungicidataka shuktak shuktak kuta jampita churanami nishpa yuyachina kanchik.
  - » Yuyachinapishmi fungicidata churanapakka 5 – 7 punllakunallatapish yallichun sakinami. Kashna kutin kutintaka yallitak lancha rikurikllapimi churarana. Mana lancha rikuri punllakunapika 30 punllakunata mana kashpaka ashawan punllakunapish shuyay tukunchik nishpa yuyachina.
  - » Ña rikuchita tukuchishka washa kay ishki mashikunaka rikuchina kan imamantatak chashna fungicidakunata akllashkamanta shinallatak imamantatak mashna kutin churanamantapish yuyarishkata.
  - » Fungicidakunata mashna kutin churashun nishpa killkashkata yupana kanchik chaywan chanikunata llukchinkapak.

- » Tantanakushpa rimanakuna chay sinchi papakunaka lanchamanta mashna jarkarikkuna kashka jawa.
3. Shuktak pachakunata rurana shuktak munak mashi-kunawan. Kashnapish ruray tukun chay shinallatak alli sinchi muyukuna shukta shuktak llaktakunapi tarpushka kakta, shuk llaktaka ashka chakishka chiri llakta shinallatak shuktak llaktapika tamyakuk asha chirilla kunuklla kay pachata. Shinallatak munashka shinami lanchata wiñachikkunata rikuchikunatapish churana shinallatak fukukuy pachakunapi lancha yaykurikuktapish rikuchi tukunkunalla.
- » Kay pachakunataka yachakukkunallatakmi wiñachilla tukunkuna. Shinallatak mishanakuyta rurana ima pachakunapi ashka jampita churana shinallatak ima pachapi ashallata churanatapish rikuchishpa.

## Tukuchinkapak ruraykuna

### Yachanata ashallayachishka

Paktaykunata sinchiyachinkapak kay rimaykunatami ashallayachishun :

- ▶ Fungicida, imata ruran, jarkak fungicida shinallatak jampik fungicida.
- ▶ Rantinapak shuti shinallatak imashina chakrushka.
- ▶ Imashina churana.
- ▶ Imamanta lanchamanta jarkarina.
- ▶ Datos de campotapish charina kashkata manarak jampita churashpa.

Chaypakka kushka rikchka pankakunatami yachakukkunawan rikuna. Chay pachakunallatakmi rikuna ñawpaman yachashkakuna killkashkata shinallatak chimpapurashpa rikuna kunanlla yachashkakunawan.

### Tukuchinkapak yachay

**Kay yachay rikuytaka ruranatakmi kan.** Paktashka mana paktashkata rikunkapakka mayjan yachakukkunamanpish mañana kay ruraykunata rurachun.

1. Shimillawan rikuchichun imami kan fungicida, shuk rikuchitapish churachun.
2. Chakrushka fungicida kakta rikuchichun, rantinapak ima shuti, imata ruran (jarkak – jampik fungicida) imashina churana ishki fungicidakunamanta, ima kashkata rikuchishpa.
3. Fungicidakunamanta rikuchik killkapi rikuna kay yachana kamupi fungicidakuna imashina chakrushka kakta, rantinapak ima shuti, imata ruran, imashina churana shinallatak manshnatak churana papapi lanchata jarkanpak.
4. Tantanakushkapak ñawpakpi rikuchina imamantatak manarak jampikunata churashpa fungicidakunatarak riksina: alli kakta, lanchata jarkakta, datos del campo nishkamanta (tarpuska kanllaman shinallatak ukumanpish mashna lanchakuna tiyan, ima pachakuna mirarin, ima muyuwan tarpushka kakta, fungicidata churashkamanta wichimanka imashina wiñashpa katin).

5. Ima fungicidata churana shinalaltak mashna kutin, imalla pachakunapi, kay yachana kamupi rikuchikuk yuyaykunawan).

**Kay yachay rikuytaka rurasha nishpalla ruray.** Yachashkata ashtawan rikusha nishpami kay tapuykunata kutichichun mañana kanchik, kay tapuykunaka Panka 113, 114 pi killkashka tiyakun, imashina ruranataka Tanchishka 1pimi willakun. Chay tapuykunata kutichishka pachallatakmi alli kutichishkata rikunachina kan shinallatak yachakukkunawan parlanakuyta rurana.

**Kay kamuta  
rurakkunaman  
yanapankapak**

Imata yuyashkata tapuna kay yachaymanta. Chay kipaka kay tapuykunatami churay tukunchik:

- ▶ ¿Rurashkakuna achikchu karka? ¿Imashinatak sinchiyachi tukurin?
- ▶ ¿Ima llakikunatak tiyarka?
- ▶ ¿Yachaykunata chaskinapakka pachakunaka paktachu karka?

## Tapuykuna

1. ¿Imapak fungicida alli kan?
  - (a) Ñukanchik tarpushkakunata llakichik hongokunata wañuchinkapakmi
  - (b) Yurakunapak mikuymi kan
  - (c) Mana yachani
2. ¿Imatak jarkak fungicida?
  - (a) Allpapi churana jampimi
  - (b) Pankapi sakirik jampimi mana yura ukumanka yaykun
  - (c) Mana yachani
3. ¿Imatak jampik fungicida?
  - (a) Pankapi yaykurik jampi
  - (b) Llullurak yurakunapi churana jampi
  - (c) Mana yachani
4. ¿Imatak chakrushka jampikakuna?
  - (a) Katunapak shuti churashka
  - (b) Chay venenopak shuti
  - (c) Mana yachani
5. ¿Imapaktak minishtirin chakrushka jampikuna imashina kakta?
  - (a) Ama chayshinallatak jampikunawan rantinkapak
  - (b) Mashnata churana kashkata yachak chayankapak
  - (c) Mana yachani
6. ¿Imatatak chay etiquetapika rikunkapak churashka?
  - (a) Chakrushka jampi
  - (b) Jatunapak churashka shuti
  - (c) Mana yachani



7. ¿Imashinatak chay jampikunata allichina?  
(a) 500 shinallatak 1000 gramos churana  
(b) Yaku shinallatak kuta fungicida  
(c) Mana yachani
8. ¿Imashinatak mana sinchi muyukunapi lanchata jarkay tukunchik?  
(a) Alli wiñachik jampita churashpa  
(b) Manarak mancha rikurikpi fungicidata churakpi  
(c) Mana yachani
9. ¿Imalla datos del campotatak charina manarak fungicidata churashpa?  
(a) Mashna lancha tiyashka  
Pachakuna imashina kakta rikushpa  
Sinchi-mana sinchi muyukuna  
Imashina yurakuna wiñan  
Jampishkamanta pacha mashna punllakunatak yallishka  
  
(b) Wiñachik jampita churana  
Allpa shutuklla kay  
Jallmaymanta pacha  
Mashna mapa kiwakuna tiyan  
Mashna tarpushka allpa  
  
(c) Mana yachani

**Alli kutichishkaku-** 1 a; 2 b; 3 a; 4 b; 5 a; 6 b; 7 b; 8 b; 9 a.  
**nata rikuchik**



## **Yachana Kamu 5**

# **Papa lanchamanta jarkarinkapak ñukanchik chakrakunata rikurayashunchik**





## Manarak yachay kallarikpi yanapak kay rikuchikunata riksinata charin

**Manarak yachay kallarikpi imata minishtinchik** 1, 2, 3 shinallatak 4 Yachana Kamuta yachashka kana kan .

**Pacha** Shuk pachata tantanakuna.

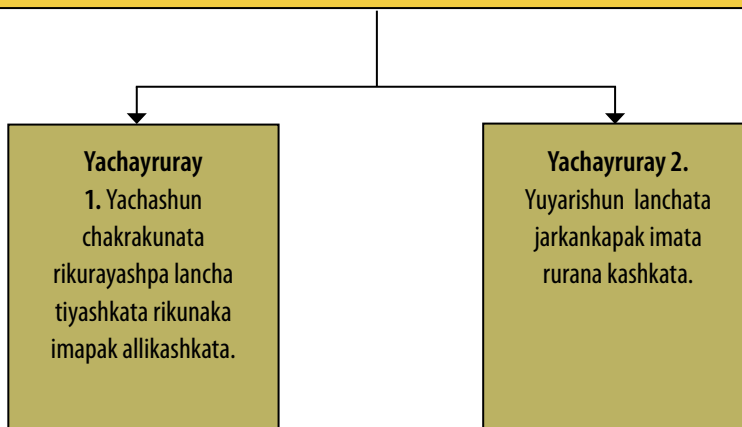
**Kallari rimaykuna** Kay yachana kamuka kayshuk yachanakunamanta rikukpika ashallami kan, shinallatak ruranami papa tapushkakunata rikunaman rishka pachakunapi. Papa unkuyka utka mirariklla unkuymi, chaymantami kanchisripi shuk kutinllapish rikushka kana kan. Chay rikuykunaka yanapanmi lancha unkuykuna japikushkata yachankapak, chayta rikushpa imashina jarkana mana kashpaka mishanata yuyarinapak. Kay yachanaka rikushkami kay tukun análisis del agro-ecosistemawan metodología del Escuela de Campo de Agricultoresta rurashkawan (ECA).

**Paktaykuna** Yachakukkunaka kay yachaykunata tukuchiska kipaka ushankami:

1. Tantanakushkapak ñawpakpi rikuchinata lancha unkuyta jarkankapak imapak katirayashpa tarpushkata rikurana alli kashkata.
2. Imalla ruranakunamantapish lancha japichun jarkankapak tarpushkata rikushka yuyaykunawan, ima jampi churana, imashina jarkana, ukuman-kanllamanpish mashna yurakuna unkushkata, ima pachakuna, jarkarik sinchi papakuna shinallatak jampishkamanta pacha wichimanka imashina tiyakukta rikuchinata ushankami.

### Kay yachana pankaka kashnami allichishka

#### Yachana Kamu 5. Papa lanchamanta jarkarinkapak ñukanchik chakrakunata rikurayashunchik



#### Yanapak allichirinapak

1. Allimanta kay killkata rikuna kan.
2. Yachayruray 1 shinallatak 2 pi rikuchikuk minishti-rikunata charina.
3. Rikcha pankakuna 123manta, 127 kama charina (Tukuy pankakunami yachakukkunapak tiyana kan).

# Kunan yachaypika yachakukkunawanka kay llankaykunatami rurana kan

## Yachayruray 1. Yachashun chakrakunata rikurayashpa lancha tiyashkata rikunaka imapak allikashkata

**Paktaykuna** Kay yachayta tukuchishpa ushankakunami tanta-nakushkapak ñawpakpi rikuchinata lancha unkuyta jarkankapak imapak katirayashpa tarpushkata rikurana alli kashkata.

**Minishtirikuna** ▶ Jatun pankakuna shinallatak marcadorkunapish.

**Imashina rurana**

1. Imamanta kay rurayta rurakrishkata yachakuk mashikunaman willanami.
2. Kay tapuykunata rurana shinallatak kutichiskakunata killkana:
  - ▶ ¿Imamantatak wawakunata jampikpakman apana alli?
  - ▶ ¿Mashna punllakunapitak wawakunata jampikpakman apana?
  - ▶ ¿Ima tukun mana jampikpakman aparpikapa?
3. Kay rikuchishkakunawan shinallatak yachakukkuna nishkakunawanpish rimanakuna imamanta minshirin tarpushkakunata rikurana, kanchisripi shuk kutinllapish.
4. Rimanakuna yachakukunawan imatatak rurakrin tarpushkapi lanchata rikunkapakka. Chay lancha unkuyka churanapi japrisihapa ri tukunllami unkushka yuramanta alli yurakunaman nishpa willana kanchik.

## Yachayruray 2. Yuyarishun lanchata jarkankapak imata rurana kashkata

**Paktaykuna** Kay yachayta tukuchishpaka yachakukkunaka lancha ama japichun jarkankapak tarpushkata rikushka yuyaykunawan, ima jampi churana, imashina jarkana, ukuman-kanllamanpish mashna yurakuna unkushkata, ima pachakuna, jarkarik sinchi papakuna shinallatak jampishkamanta pacha wichimanka imashina tiyakukta rikuchinata ushankami.

**Minishtirikuna**

- ▶ Pishka mana kashpaka kimsa. tantanakushkakunapak shuk jatun pankami minishtirin.
- ▶ Shuktak shukta tullpu marcadorkuna.

**Imashina rurana**

1. Imamanta kay rurayta rurakrishkata yachakuk mashikunaman willanami.
2. Papa tarpushkata rikukrina.
3. Yuyarina imashina lancha rikurikta (Yachayruray 1 Yachana Kamu 1), imamanta chay funguicida churanata shinallatak imamanta mashna kutin churanatapish yuyarina kan (funguicida mashna alli kashkata, jarkakta, tarpushka ukuman shinallatak kanllamanpish mashna lanchakuna tiyan, lancha wiñanapak pachakunata, sinchi papa muyukuna, imashina wiñakukta jampishkamanta wichiman) (Yachayruray 1 shinallatak 2, Yachana Kamu 4) (Mirachishka yuyay 1 ta rikuna).
4. Yachakukkuna imashina kakta rikushpami uraman tiyakuk ish kay ruraymantaka shukta rurayta japi tukunchik:

### Yachayñan 1 (Killkana ñawirinatapish yachakkunapakmi kan).

- ▶ Rurana pankakunata kuna (panka 124 shinallatak 127) chayta imashina ruranatapish rikuchina (panka 125 shinallatak 126) tukuy yachakukkunaman.
- ▶ Yachakukkunaman mañana tarpushkakunata rikuyta rurachunkuna, ñawpaman rimashkakunata

yuyaypi apashpa shinallatak rurana pankakunapimi chay rimashkakunata killkanata charinkuna. Kay ruraytaka ruraytukurinmi pishka mana kashpaka kimsa yachakukkuna tantanakushpa. Kay rikuchishkakunata katina:

- » Panka 123 pi ishkey tablakuna tiyan: shukka kanmi yuyaykuna shinallatak puntajekuna; katikka kanmi ñankamu ima ruranakunata rikuchik.
- » Panka 124 pika tiyanmi “Observaciones de campo” killka.
- » Yachakukunaka chay yuyaykunata-puntajekunata rikuchik tablapi mashna yupay kashkata churankakuna. Nishunlla, muyu mana sinchi karpika killkanami 3 yupayta maypi killkana tabllallapitak “Observaciones de Campo” killkapi.
- » Yuyaykunata rikuchik tablapi juntachiska washami tukuy yupaykunata mirachina kanchik chay mirachishka yupaykunawan “ñankamu ima ruranakunata rikuchik”wan chimpapurashpa rikuna kanchik chaypimi ima ruranatapish rikuchinka.

**MAYMUTSURIK.** Kay rikuchikka yachakuk imata kashpapi yuyarichun yanapakmi kana kan, mana kaytami rurana kanki nik pankachu. Kayta rikuchina yuyayka kanmi ashtawanpish allpapi tarpuk achik-llata yachachun imawan jampinatapish mashna kutin jampinata, ima pachakunallapi. Tukuy chaykunata yuyaypi apachunmi kan.

- » Allita jamutachi tukunapakka pankas 125 shinallatak 126 pi imashina rurana rikuchika japinallami.

**Yachayñan 2 (mana killkana ñawirinatapish yachak yachakukkunapak).**

- Yachakkunaman mañana tarpushkakunata rikuykunata rurachunkuna ñawpaman

- rimanakushka yuyaykunawan (mashna alli jampi kakta, jarkanamanta, ima pachakuna, ima papa muyukuna alli kakta, imashina wiñan jampishka pachakunamanta wichimanka).
- ▶ Tukuy tantanakushkakunaman kayta ruraychik nishpa mañana:
    - » Jatun pankapi ima rikushkata shuyuna.
    - » Lanchata jarkanapak ima ruranata nina.
  - 5. Tantanakushpa alli yuyarishpa nina imata ruranata lancha unkuy yurakunata japikpi chaymantaka junatachina panka 127. Chayta ruraykunaka kay tukunmi jampita churanata, wichi shitanata mana kashpaka pankakunata pitinatapish.
  - 6. Yachakukkunawan rikuna ima pachakunatak tarpushkakaunta rikushun nishpa. Yuyaypi kashpaka shuk kanchisripi shuk kutinllapish ruranami. Yuyarina imamanta tarpushkakaunata rikurayanamanta.
  - 7. Lanchata jarkanamanta ruray kashka jawa fungicidata rurana kaspika, chusku niki yachanapi kushka rikuchiktami japina imalla chakrushka fungicidakunata churanata yachankapak. Yachakkunawan shuk jampikunata randina wasiman rina. Chaypi akllankapak shinallatak randinapakpish. Ña churana pachapika plaguicidaskunata ima rurana nishkakatami kanita.

### **Mirachishka yuyay 1**

Ña lancha murukunapi rikurikpika sustarinami pukunkakama jampinata, shinallatak wichi shitarana mana kashpaka pankakunata pitina ña murukuna jatuna pakta kaspika. Kay rurayka ashtawanpish muruman lancha unkuy yaykukta jarkanapakmi. Kaykuna im kashkata alli yuyarinkapakka imashina lancha ukuy kallarik tukurikpish kashkata rikuchik shuyuta japitunkimi (panka 53, Yachana 2).





## Imashina lancha jarkayta ruranapak yuyarikunata rikuchikkunami

Kay pankaka yachakukkunaman kuna kan

### Ima yuyay shinallatak mashna yupaykuna

Ima yuyay shinallatak mashna yupaykuna	Mashna yupaykuna
<b>Jarkarik sinchi muyu papakuna</b>	
Ashtawan sinchi muyu	3
Sinchi muyu	2
Sinchitak muyu	1
<b>Imashina pachakuna</b>	
Ashka tamyakuy pachakuna	3
Tamyakuy pacha	2
Chakish	1
<b>Imashina tarpushka</b>	
Wiñakuy shinallatak sisakuy	2
Pukuy	1
<b>Tarpushka uku shinallatak kanllamana mashna lanchakunata tiyan</b>	
Ashka lancha	3
Ashalla lancha	2
Lancha illaklla	1
<b>Fungicida churashkamanta wichiman</b>	
14 punllakunata yallis	3
8 punlla shinallatak 13 punllakuna chawpi	2
7 punllakuna uriman	1

### Kayta ruraychik ninapak rikuchikkuna

Mirachishka yupaykuna	Ruranapak mana ruranapakpish
5	Mana rurana
6 a 9	Kuta fungicida
10 a 14	Yaku fungicida



## Tarpushkata rikunapak

Kay pankataka yachakukkunaman kuna kan

**Maypi kan:**

**Mama kuchamanta mashnatak jawaman kan:**

**Ima punlla tarpushka:**

**Ima shuti papata tarpushka:**

Ima punlla	Sinchi jarjarik papa*	Imashina pachakuna	Imashina tarpushka	Tarpushka ukuman shinnallatak kanllamanpish mashna lancha tiyan	Jampinata churashka wichiman pachakuna	Tantachishka	Ima rurana nishkakanan

\* Ni tukurinmi sinchi jarjarik muyuka mana shuktak tukuchu tarpushka pachakunapi.



## Tarpushkata rikunapak imashina rurana kashkata rikuchik panká

### Kay pankataka yachakukkunaman kuna kan

- ▶ Shuk allpapi tarpukka papa tarpushkatami charin Loma Grande nishka llaktapi.
- ▶ Chay mashikuna kawsana llaktaka 2.900 metros mama kucha jawamanmi sakirin
- ▶ Kulla killa 2 punllapimi tarpushka karka.
- ▶ INIAP-Gabriela nishka muyutami tarpurka, chayka lanchata jawalla japina muyumi. Mashna yupay shinallatak yuyaykunata rikuchik tablapi rikupika, sinchi muyuta rikuchikpika kimsa casilleropimi yaykun. Chay mashna yupayka tukuy tarpunka kamami sakirin.
- ▶ Papata tarpukka febrero pishka punllapi tarpushkata alli mana alli kaktapish rikurka.
- ▶ Chay pachakunaka ashka tamyá pachakunami karka. Yuyaykunata shinallatak mashna yupaykuna rikuna tablapi rikupika, casillero 2 pimi kana kan 'ima pachakunata rikupika'.
- ▶ Tarpushkaka alli wiñakuy pachapimi karka. Chaymantami, 2 niki yupayka maypimi kana casilleropimi yaykun.
- ▶ Tarpushka kanllaman shinallatak ukumanpish ashka lanchami tiyarka, Chaymanta, 3 niki yupay chaypi kana kan.
- ▶ Panchi killa 5 punllakamaka mana ima fungicidata churanachu. Chaymantami, "punllakuna ima pachamantami fungicida churashkamanta" casillataka yurakpimi sakina.
- ▶ Tarpukkunaka ñawpaman mashna yupaykunata mirachishpa chunkamanmi chayankuna, "Ima rurana rikuchik", chaypika jampik fungicidatami churana nikurka. Chay pachallatak yuyarirka lanchata jarkana ashka alli kashkata. Chay datoskunawanmi yuyarirka nishkakunata chaskinata shinallatak jampik fungicida churanata.
- ▶ Kanchis punllakuna washa (panchi killa 12 punlla) tarpukka kutinllatakmi imashina tarpushka tiyakukta rikurka.
- ▶ Chay pachakunaka ashka chakishkami karka. Yuyaykunata rikuchik shinallatak mashna yupaykuna rikuna tablapika 1 niki yupaymi chaypakka.
- ▶ Tarpuyka wiñakuy pachapimi katirkalla. Chaymantami, 2 yupaypak kan.
- ▶ Tarpushka kanllaman shinallatak ukumanpish mana ashka lancha tiyanachu. Chaymantami, chaypakka 2 yupay kan.
- ▶ 7 punllakunami fungicidata churashkamanta pachaka. Chaymantami, shuk niki chayñiman rina kan.
- ▶ Tarpukka ñawpakunamanta tukuy tantachishpaka 9 tami japirka. 'Ima rurana rikuchik' tablapi rikuchikpika, jarkak fungicidata churana nishka karka. Shinapish, anki uyariپی uyarkami sinchi tamyata chay llaktapak chaymantami mana llakikunata charinkapakka shuk jampik fungicidata churanatami yuyarirka.

**Maypi:** Loma Grandepi

**Mama kuchamanta mashna jawaman kan:** 2.900 metros jawaman

**Ima punlla tarpushka:** Kulla killa 2 punllapi.

**Ima shuti muyu tarpushka:** INI/AP-Gabriela

Ima punlla	Jarkarik sinchi muyu*	Imashina pachakuna	Imashina tarpushka	Tarpushka kanllaman shinallatak ukumanpish manshna lancha	Fungicidata churashkamanta wichiman	Tantachishka	Ima rurana nishkakuna
5 feb	3	2	2	3		10	Jampik fungicida
12 feb	3	1	2	2	1	9	Jarkak fungicida

\* Sinchi jarkarik muyuka pachakunapi mana shuktak tukuy tukunchu ni tukunchikmi.



## Lanchata jarkankapak ima rurashkakunata juntachinapak

Kay pankataka yachakukkunaman kuna kan

**Maypi:**

**Mama kuchamanta mashna jawaman kan:**

**Imashuti muyu:**

**Ima punlla tarpushka:**

**Mashna allpapi:**

Ima punlla rikushka	Jarkanapak ruray*	Imashuti fungicida	Imallawan chakrushka	Imashina churana	Chani	Mashna yaku	Llankakuna

\* Fungicidata churana kay tukun, jallmashpa ashka allpata churana kakpi mana kashpaka pankakunata pitina kakpi ña papakuna jatuna paktata pukushka kakpi.

# Tantachishka 1

## Mashna yachashkata rikunkapak





# Tantanakuyta manarak kallarishpa yanapak allichirinapak

**Kallarichi rimay** Kay yachashkata rikunkapak nishkataka *prueba de caja*, *prueba de campo* mana kashpaka *prueba de chakra* shutiwanpish riksishkami kan. Kayka shuk yachayñanmi kan Escuelas de Campo de Agricultores (ECAs)pika kaywanmi llankankuna. Kay ECA nishkata kallarihpaka kay tapuykunaka yachakkuna yachashkata rikunapakmi kan, ima illakpika chaytapish yachaypak allichinkapak. ECA ta tukuchishka kipa tantanakyunapi yachashkakunatami kay yachayñanwanka rikuchinka. Kay yachayñan yachashkata rikunkapak killkawanka kallarinapak shinallatak Yachana kamuta tukuchishpish minishtirishka kana kan chashnallami yachakukkuna mashna yachakushka mana yachakushkatapish riksishun.

**Ñawpak allichirina** Shuk mana kashpaka iski punlla ñawpaman.

- Minishtirikuna**
- ▶ Plancha de cartón 50 x 50 cm (sapan tapuykunapak shuk plancha).
  - ▶ Tukuylaya tullpu cartulinakuna, tijeras shinallatak llutachinakunapish.
  - ▶ Marcadorkuna.
  - ▶ Kaspikunamanta postekuna shinallatak clavokuna chay planchakunata charichinapak (shuk planchapak 2 kaspikuna).
  - ▶ Cartulinamanta rurashka uchilla cajakuna
  - ▶ Papa tarpushkakuna, ashtawantakka lancha unkuy japishka papakuna.

- Imashina rurana**
- a) Yachay rikuyta rurankapak allichiri**
- ▶ Sapan cartónkunamanta rurashka planchakunapi rurana 3 aberturas 4 x 2 cm imashinami Panka 124 rikuchikuk shinata. Chay aberturakunaka kutichishkakunata wakichinkapakmi kan.
  - ▶ Chay aberturakuna washamanka uchilla caja cartulinakunatami churana. Chay cajakunaka kutichishka fichakunata wakichinkapakmi kan.



- ▶ Cartulinakunamanta tarjetakunata pitina, chaykunapika tapuykunata shinallatak wakin kutichishkakunata pish killkana sapan Yachana Kamu tukuripimi chay tapuykuna kutichishkakunapish tiyakunka. Tukuy tapuykunami alli rikushkakuna kay yupaykunawan (1, 2, 3, shina). Chay kutichishkakunapish rikuchishka kana kan kashna killkakunawan (a, b, c).
- ▶ Shuk tapuyta llutana plancha de cartón jawapi.
- ▶ Kutichishkakunata llutana paskashka planchakuna jawapi.
- ▶ 2 kaspi postekunata clavana plancha manyakunapi
- ▶ Plancha de cartónpika tapuykunata churana shinallatak kutichishkakunataka *estación de evaluación* shutiwan churana.
- ▶ Cartulina fichakunata pitina 3 x 3 cm. 2 shina rikuchi tukunchikllami. Shukpika *tukuykunata tantachishpa* yachashkakunata rikuna, nisha ninmi, mana pipak shutita churashpa. Ishki shina ruraypika minishtirinmi sapan yachakukkunata yachashkakunata rikuna, chayka nisha ninmi, *sapan mashimi* yachashkata rikuchinata charin.

**Churashunlla.** Yachashkakunata rikukrinchik 5 mashikunata 6 tapuykunawan (2 karikuna shinallatak 3 warmikuna) yachana kamu yachayta kallarinapak shinallatak tukuchinkapakpish.

**Shina 1: Tukuykunata tantachispa yachashkata rikuna**

1. Tukuy chaypi kakkunapak kutichishka fichakunata rurana: shuk ficha shuk tapuywan, shuktak shuktak tullpukunawan, karikunapak shinallatak warmikunapakpish, kallarinapak shinallatak tukuchinkapakpish yachashkakunata rikunkapa.

**Kallarinkapak yachashkakunata rikunkapak fichakuna**

Karikunapak fichakuna	Warmikunapak fichakuna	Karikunapak fichakuna	Warmikunapak kichakuna

**Shina 2. Sapan mashita yachashkata rikunkapak**

1. Yachakukkunapak shutikunata yupaywan killkana. Kashna shina.

1. Juan
2. Pedro
3. Elsa
4. Dora
5. Olga

2. Tukuy yachakukkunapka kutichishka fichakunapi yupaykunawan churana: shuk ficha shuk tapuywan shuktak shuktak tullpukuna, kallari yachashkata rikunkapakshinallatak tukuchinkapakpish.

**Kallarinkapak fich**

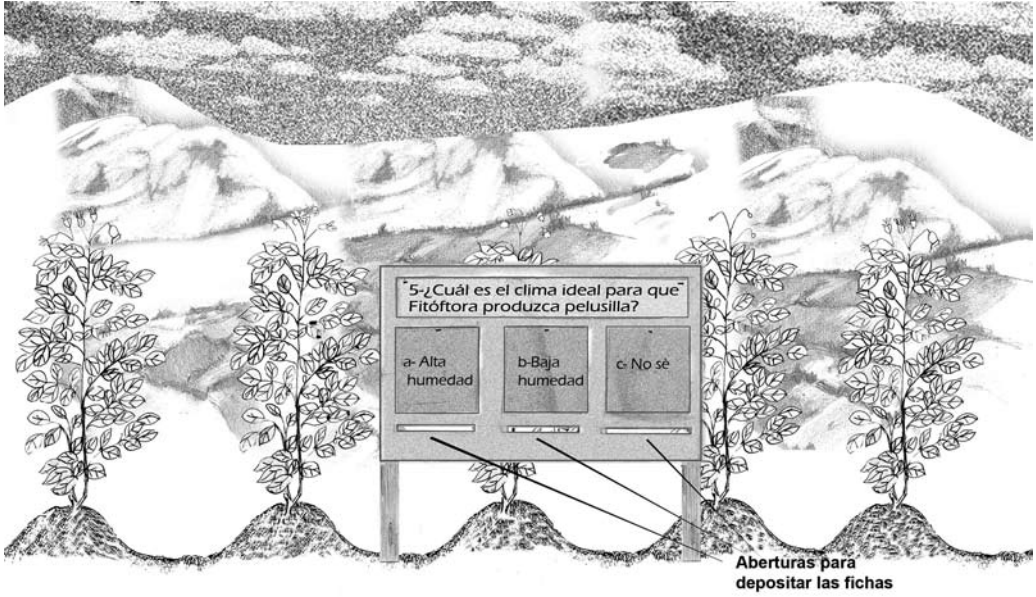

Juan Pedro Elsa Dora Olga

**Tukuchinkapak ficha**

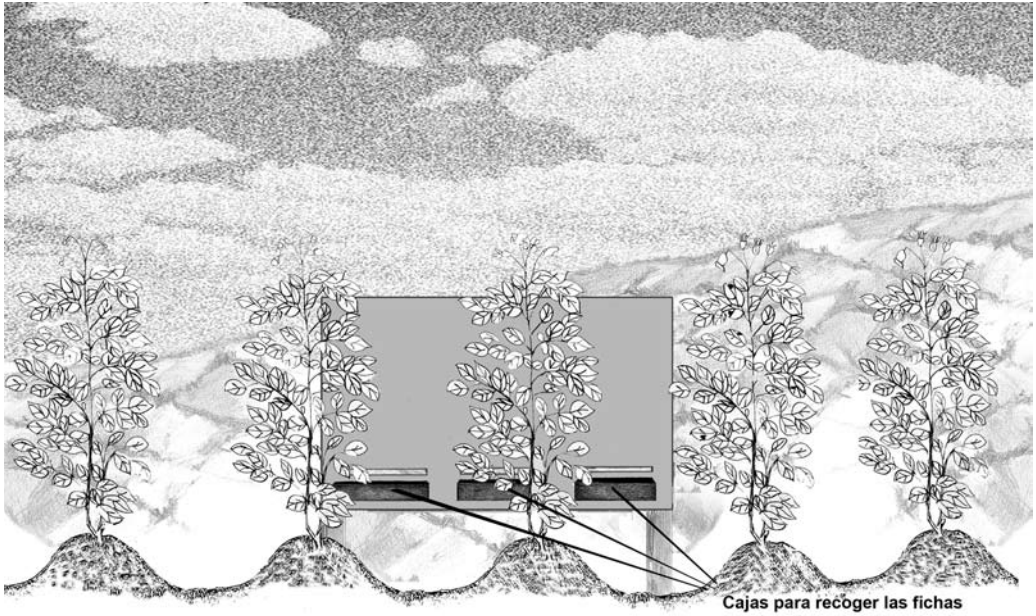

Juan Pedro Elsa Dora Olga

### Yachashkata rikuchik shuyu

#### Ñawpakmanta rikukpi



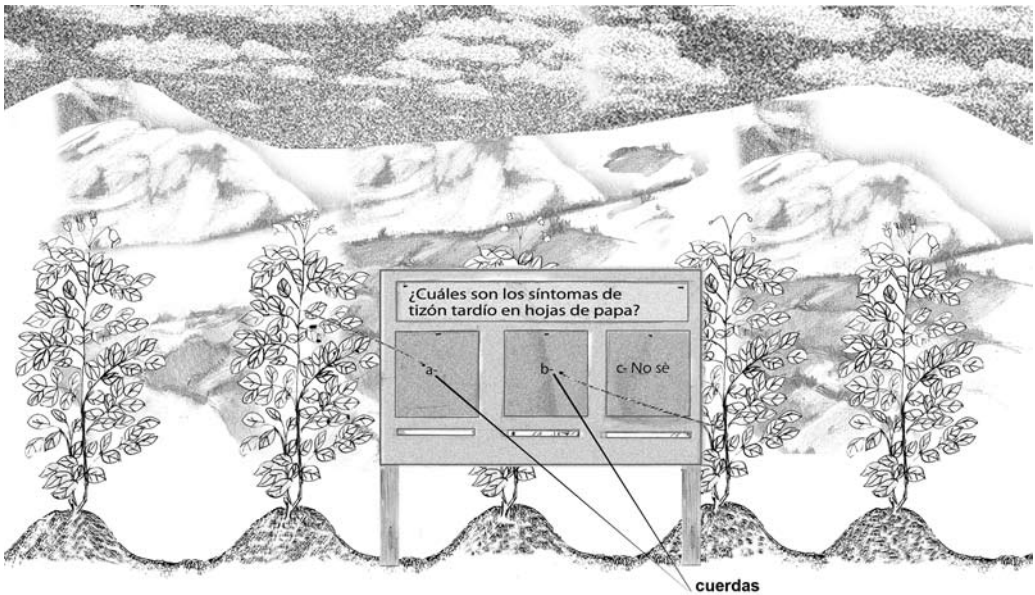
#### Washamanta rikukpi



### b) Kallaripi yachaykunata rikunkapak

Kaytaka manarak yachanata rikushpami rurana. Kay rikuchishkakunatami katina:

- ▶ Estaciones de evaluación rurashkakunata maypi yachay rikuy rurakrishkapi churana. Yallitakka, chaytaka rurankunami ECA tarpushkakunapak muyuntikpi. Shuk estación chayshuk estaciónwanka 3 mana kashpaka 5 metrokuna karumanmi kana kan ama paykunapura rimaykunawan chapurichun.
- ▶ May pachakunapika rikuchikunata churay tukunchik maytanpish aklachunkuna, imashinami kati shuyupi rikuchikun.



- ▶ Kutichiska fichakunata yachakukkunaman kuna. Tukuy yachakukkunami shuk tapuywan shuk kutichishkawanpish fichata chaskinka. Chaymanta, fichakunaka mashna estación de evaluación churashka shinallatakmi kana kan.
- ▶ Shuk yachakukta estación de evaluación chimpapurapi churana (Mirachishka yuyay 2). Chay estaciónkunaka mashna yachakkunapak paktami

kana kan. Mana tapuyta charik estación kakkipish sakinallami kan. *Estación de evaluación* tapuy illak kakkpika samarim estación shutiwan riksinchik.

- ▶ Kashna ruraychik nishpa yachakukunamanka willana:
  - » Alli rikushpa ñawirina tapuykunata shinallatak imata kutichinakutapish.
  - » Tapuykunata kutichina aberturapi fichakunata churashpa.
- ▶ Sapan tapuypak mashna pachakuna minishtirishkata rikuna.
- ▶ Yachakukkunata mañana tapuykunata kutichichun. Ña tukuykuna kutichishka kakkpika, mañana kayshuk estaciónma yallichunkuna (imashina pachata rikuchik muyurin chashna shinallatak muyuri tukunkuna). Kay rurayta katishpa rurana tukuy tapuykuna tikurinkakama.

#### **Mirachishka yuyay 2**

Mana killkana ñawirinata yachak yachakukkuna kakkpika tukuy estación de evaluaciónpimi killkana ñawirinata yachak mashita churana kan.

#### **c) Tukuripi yachaykunata rikunkapak**

Kaytaka ruranami yachana kamuta tukuchishka kipa.

- ▶ Tukuy yachakukkunaman shuk fichata kuna. Kallari yachaykunata rikunkapak kushka ficha tullpukunatakka mana kunachu kan chaymanta yuyaypi kana tukun.
- ▶ Ñawpaman rikuchishkakunatak katina kanchik.
- ▶ Tukuripi, alli kutichishkakunata yupana. Kallaripi kutichishkakunawan shinallatak tukuripi kutichishkakunawanmi rikushun yachakkuna yachashka mana yachashkatapish, chashnallami yacharinka imashina kakta.

## Tantachishka 2

# Fungicidakupana ñankamu







## Ecuador mamallaktapi papata ama lancha japichun fungicidakunawan jampinkapak rikuchik panka <sup>(\*)</sup>

Kay pankaka yachakukunaman kuna kan

### Lanchata jarkankapak chakrushka fungicidakuna

<b>Jarkak fungicida</b>	Cobres de contacto <sup>(1)</sup>
	Clorotalonil
	Fentín <sup>(1)</sup>
	Folpet
	Mancozeb
	Maneb
	Metiran
	Propineb
	Zineb
<b>Jampik fungicida</b>	Benalaxyl <sup>(2)</sup>
	Cobre sistémico <sup>(1)</sup>
	Cymoxanil
	Dimethomorph
	Fosetyl aluminio
	Furalaxyl <sup>(2)</sup>
	Metalaxyl <sup>(2)</sup>
	Propamocarb
	Ofurace <sup>(2)</sup>
Oxadixyl <sup>(2)</sup>	

1 Sisashka washa churana

2 Kayshuk chakrushka fungicidakunatapish churashpami kay jampikunataka churana

CIP, INIAP shinallatak SENACYT mana fungicidakunata churachuntakka mañakun imashinami kay ñankamupi rikuchikun. Kay ñankamupi willashkakunaka yachankapakmi kan shinapish allpapi llankakkuna fungicidakunata churashpa imaka paykunapimi tiyan. Fungicidakunata mana maypish kachun churashpa shinallatak runaman ama waklllichichun jarkarishpa imaka kay ñankamuta yachakukunapimi tiyan.

<sup>(\*)</sup> Kay rimayta maypi japishka:

- Gallegos, P., Orellana, H., y Velasteguí, J. 2004. Vademécum agrícola. 8ª. ed. Edifarm, Quito. 920 p.
- Falconí, C., Orellana, H., Velasteguí, J., y Gallegos, P. 2006. Vademécum agrícola. 9ª. ed. Edifarm, Quito. 1256 p.
- Schwinn, F. J. y Margot, P. 1991. Control with chemicals. In Advances in Plant Pathology. Vol. 7. Phytophthora infestans, the cause of Late Blight of potato. D. S. Ingram and P.H. Williams, (eds.). Academic Press. London. pp. 225-265.



## 1. Lanchamanta jarkarinkapak chakrushka fungicidakuna

Chakrushka fungicida	Rantinapak shuti	Imashina churana
<b>Clorotalonil</b>	Balear 720	38 cc ta 20 litrokunapi
	Bravo 720	1 manta 2 litrokunakama shuk hectáreapi.
	Dacapo	26 cc ta 20 litrokunapi
	Daconil ultrex	1,5 manta 1,8 litrokama shuk hectáreapi
	Daconil 720	0,7 manta 1,5 litrokama shuk hectáreapi
	Echo 720	1 manta 2 litrokunakama shuk hectareapi
	Fungil 500	50 manta 100 cc kama 20 litrokunapi
	Fungil 720	50 manta 75 cc kama 20 litrokunapi
	Thalonex 500 y 720	1,2 manta 2,4 litrokunakama shuk hectáreapi
<b>Cobres (de contacto)</b>	Caldo bordelés 80%PM	2 manta 3,5 kg kama shuk hectáreapi.
	Champion PM	3,4 manta 4,5 kg kama shuk hectáreapi
	Kocide 2000	40 g 20 litrokunapi.
	Kocide 101	1,5 manta 3 kg kama shuk hectáreakunapi
	Oxichel	50 manta 100 litrokuna kama 20 litrokunapi
	Oxicloruro de cobre 85 PM	80 g por 20 litros
<b>Fentín</b>	Brestan 60% PM	10 g 20 litrokunapi
	Brestanid	12 cc 20 litrokunapi
	Supertin 48sc	10 cc 20 litrokunapi
<b>Folpet</b>	Folpan 50 PM	100 g 20 litrokunapi
<b>Mancozeb</b>	Alarm 80WP	Mana tiyachu
	Dithane FMB	125 cc 20 litrokunapi
	Dithane M-45 NT	45 g 20 litrokunapi
	Flonex MZ 400	3 manta 3,5 litrokunakama shuk hectáreapi
	Fungis-Khan PM	50 g 20 litrokunapi
	Mancothane	2,5 manta 3,5 kg kama shuk hectáreapi.
	Mancozeb 80 PM	140 g 20 litrokunapi
	Mancozin 43 F Manzin 800 PM	150 manta 270 cc kama 20 litrokunapi
	Titan 80 WP	100 g 20 litrokunapi
	Triziman D	2 manta 4 kg kama shuk hectáreapi
Vondozeb 62% SC	100 cc por 20 litrokunapi	
<b>Maneb</b>	Trimangol 80% PM	2 manta 4 kg kama shuk hectáreapi
	Maneb 80% PM	
<b>Propineb</b>	Angular	50 g 20 litrokunapi
	Antracol 70 PM	50 g 20 litrokunapi
	Rifle 70 PM	50 g 20 litrokunapi
	Siti	1,5 manta 2,5 kg shuk hectáreapi

**Abreviaturas:** cc = centímetro cúbico, g = gramo, kg = kilogramo, ha = hectárea

**Equivalencias:** 1 litro = 1.000 cc, 1 kg = 1.000 g, 1 ha = 10.000 m<sup>2</sup>

## 2. Jarkak fungicidakunapura chakruna

Chakrushka fungicida	Rantinapak shutil	Imashina churana
Folpet + cobre	Folpex Forte	50 manta 100 g kama 20 litrokunapi
Mancozeb + caldo bordelés	Cuprofix 30	50 g por 20 litrokunapi
	Sulcopac	50 g por 20 litrokunapi
Mancozeb + cobre	Cobrethane	50 manta 100 g kama 20 litrokunapi
	Oxithane	100 g por 20 litrokunapi
Maneb + Zineb + oxicloruro de cobre	Cupropac	1,5 manta 2 kg kama shuk hectáreapi
Propineb + cobre	Punto 50.3 PM	3manta 3,5 kg kama shuk hectáreapi
Mancozeb + Propamocarb	Tatoo	4 litrokuna shuk hectáreapi
Zineb + maneb + ferbam	Tricarbamix Especial 70%	22 manta 3 kg kama shuk hectáreapi.

## 3. Jampik fungicidakuna

Chakrushka fungicida	Rantinapak shuti	Imashina churana
Cobre (sistémico)	Cupron 40	20 manta 25 cc kama 20 litrokunapi
	Phyton	0,75 manta 1,5 litrokunapi
	Skul 27	0,75 manta 1,5 litrokunapi shuk hectáreapi
	Sulcopen 24%	20 cc 20 litrokunapi
Fosetyl	Aliette	3 g litrokunapi
	Fosetal	2 g litrokunapi
	Fostar	40 g por 20 litrokunapi
	Fostonic	2,5 g shuk hectáreapi
	Fozzy	40 g 20 litrokunapi
Propamocarb	Dovex	50 cc 20 litrokunapi
	Kemikar	50 cc 20 litrokunapi
	Previcur N	50 manta 100 cc 20 litrokunapi
	Procure	50 manta 100 cc 20 litrokunapi
	Proplant	1,5 manta 2 litrokunapi shuk hectáreapi
	Proton	50 cc 20 litrokunapi
	Sargent	50 cc 20 litrokunapi

**Abreviaturas:** cc = centímetro cúbico, g = gramo, kg = kilogramo, ha = hectárea  
**Equivalencias:** 1 litro = 1.000 cc, 1 kg = 1.000 g, 1 ha = 10.000 m<sup>2</sup>

#### 4. Jarkak shinallatak jampik fungicidakunawan chakrui

Chakrushka fungicida	Rantinapak shuti	Imashina churana
<b>Benalaxyl + mancozeb</b>	Galben M-8-65	50 g 20 litrokunapi
<b>Cymoxanil + cobre</b>	Volcán	50 g 20 litrokunapi
<b>Cymoxanil + folpet</b>	Foxanil	50 manta 100 g kama 20 litrokunapi
<b>Cymoxanil + mancozeb</b>	Curalancha	50 g 20 litrokunapi
	Curathane	50 g 20 litrokunapi
	Campuz M-8	50 g 20 litrokunapi
	Curzate M-8	50 g 20 litrokunapi
	CY_MAN 720	50 g 20 litrokunapi
	Fungidor MC-8	50 g 20 litrokunapi
	Fungimont MC-8	50 g 20 litrokunapi
	Kuralan	50 g 20 litrokunapi
	Lanchafin	50 g 20 litrokunapi
	Moxan	50 g 20 litrokunapi
	Persist	50 g 20 litrokunapi
	Recio	50 manta 100 g kama 20 litrokunapi
	Tromba	50 g 20 litrokunapi
	Procymox	50 g 20 litrokunapi
<b>Cymoxanil + metiram</b>	Aviso DF	50 g 20 litrokunapi
<b>Cymoxanil + propineb</b>	Fitoraz 76 PM	1,5 manta 2 kg kama shuk hectáreapi
	Fitoroc 76 PM	50 g por 20 litrokunapi
<b>Dimetomorph + mancozeb</b>	Acrobat	75 g 20 litrokunapi
	Corbat	75 g 20 litrokunapi
	Patron	75 g 20 litrokunapi
<b>Fosetyl + mancozeb</b>	Rhodax PM	50 g 20 litrokunapi
	Rhodax 70 WP	50 manta 100 g kama 20 litrokunapi
<b>Metalaxyl + cobre</b>	Lanchero	200 manta 250 g kama 20 litrokunapi
<b>Metalaxyl + mancozeb</b>	Kóctel 720	2 manta 2,5 kg kama shuk hectáreapi
	Metasan	2 manta 2,5 kg kama shuk hectáreapi
	Metaranch	50 g 20 litrokunapi
	Metron	50 g 20 litrokunapi
	Milor	25 g 20 litrokunapi
	Otria Plus	200 manta 300 g kama shuk hectáreapi
	Prior MZ	50 g 20 litrokunapi
	Ridomil Gold	2,5 manta 3 kg kama shuk hectáreapi
	Rolaxil	2 kg shuk hectáreapi
	Talon	2 manta 3 kg kama shuk hectáreapi
<b>Metalaxyl + propamocarb</b>	Predomil	40 g 20 litrokunapi
<b>Ofurace + Mancozeb</b>	Patafol Plus	2manta 3 kg shuk hectáreapi
	Grolan	50 manta 100 g kama 20 litrokunapi
<b>Oxadixyl + Mancozeb</b>	Sandofan	2,4 manta 3 kg kama shuk hectáreapi



#### CIP –PA SHUYAYKUNA

El Centro Internacional de la Papa (CIP)ka mashkanmi wakchayay kawsayta ashallayachinata shinallatak pachamamatapish mana llakichishpa tukuykunapak pakta kikin mikuy tiyachun ñawpakman llukshikuk mamallaktakunapi, amawta yachaykunata taripaykunawan shinallatak shuktak llankaykunatapish papawan, camotewan, sapimanta pukuk shuktak murukunawan ruraspha shinallatak papata camote tarpuykunapak allpapachapi tiyakkunatapish kamashpa.

#### CIP –PA MUSKUY

Centro Internacional de la Papa (CIP)ka yanapankami wakchayay kawsayta ashallayachishpa shinallatak yarikaypish ama tiyachun, alli kay tiyachun, ayllullaktakunapi yachashkakunatapish sinchiyachiwan, mushuk yachaykunata chaski tukuchunkuna ima llankaykunatapish ashawan jawalla ruray tukuchunkuna. CIPka jatun ruraykunata mushuk yuyaykunawan chimpapurankami taripaykunata rurashpa shinallatak sapimanta fukuchishpa llankakkunawan chashnallatak allpapachapi tiyaykunata kamashpa llankakkunawanpish yanaparinakushpa maypimi CIP llankaykunata ñawpakman apay tukun runapak alli kawsay shinallatak alli kay tiyachunpish.

[www.cipotato.org](http://www.cipotato.org)



CIPmanka shuk tantanakushka mamallaktakunata pushakkuna, fundaciones privadas, shuktak karu mamallaktakunamanta tantanakuykunapish Grupo Consultivo para la Investigación Agrícola Internacionalman wankurishkakuna, ashtawanka inglés killkapika kashnami killkarishka kan CGIAR, paykunami yanapayta kunkuna.

[www.cgiar.org](http://www.cgiar.org)

