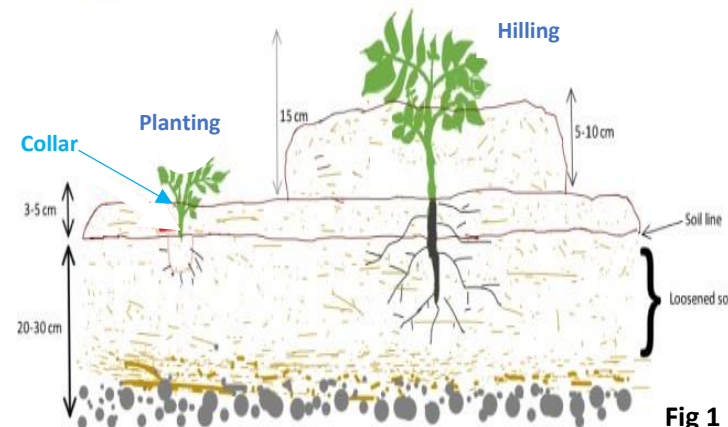


FIELD PROTOCOL: PLANTING AND MANAGEMENT OF POTATO ROOTED APICAL CUTTINGS

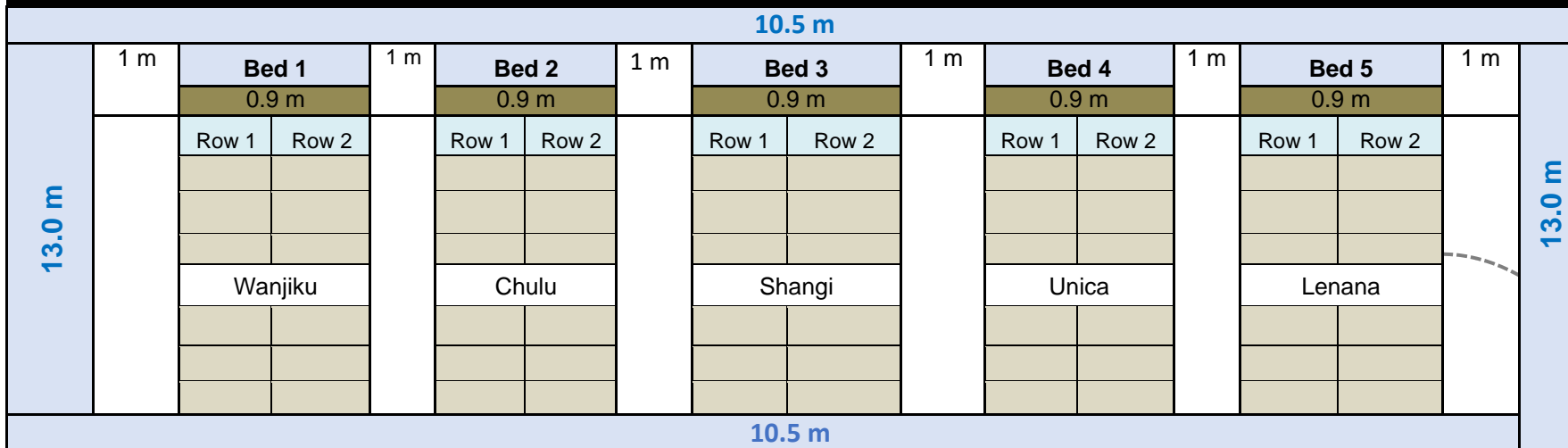
Objective: Showcase novel seed systems (seed producer and farmer saved seed plots) combining use of robust potato varieties

Activity	Protocol
General consideration	<ul style="list-style-type: none"> Ensure the beds/seed plots are set on slopes which are not below ware potato/potato families as this poses high risk for spread of diseases. The potato family includes tobacco, nightshade, eggplant, chilies, tomato etc. The beds/seed plots must be on a site which has not been on potato production/potato family for at least the last 4 consecutive seasons. The site should be close to water supply for easy watering especially within the first 2 weeks of planting.
Seedbed preparation	<ul style="list-style-type: none"> Plough the land to a depth of 20-30 cm. See Fig 1. For seed producer plots, measure seedbeds in an area of 13 m by 10.5 m = 136.5 m² in Ainabkoi, Mau Narok, Bomet Central, Kinangop, Ol Kalou sites (Fig 2) and 13 m by 8.6 m = 111.8 m² in Kieni West and East (Fig 5). Each bed measures 0.9 m width by 13 m length with an interspacing of 1 m between beds. For seed plots (farmer saved seed), measure seedbeds in an area of 6.5 m by 6.7 m = 43.55 m² in Ainabkoi, Mau Narok, Bomet Central, Kinangop, Ol Kalou sites (Fig 3) and 6.5 m by 4.8 m = 31.2 m² in Kieni West and East (Fig 6). Each bed measures 0.9 m width by 6.5 m length with an interspacing of 1 m between beds. Raise the seedbeds to 3-5 cm height above the soil line. See Fig 1. Rake the raised seedbeds to a uniform level.
Fertilizer application	<ul style="list-style-type: none"> Apply basal NPK on the seedbeds at rates of 50 g per sqm. Croprnuts results will inform this general rate. Properly mix the fertilizer with the soil. Achieve this by raking or spreading using gloved hands. Topdressing shall be done at 2 weeks after planting using CAN at rates of 25 g per sqm. Note: This activity shall be informed by the general condition of the plants and the advice by Croprnuts results; generally, yellowing and stunted growth indicate need for topdressing.
Planting	<ul style="list-style-type: none"> Plant the cuttings at a spacing of 30 cm between rows and 25 cm within rows; 2 rows per bed; leaving 30 cm to each edge. See Fig 4. For the seed producer demo (Fig 2 & 5), a row will accommodate 50 cuttings; and thus 100 cuttings per bed. For the seed plot demo (Fig 3 & 6), a bed accommodates 2 rows and 1 potato variety per row. A row accommodate 25 cuttings; and thus 50 cuttings per bed. Transplant the cuttings in the seedbeds, burying the collar and leaving only top foliage above ground. See Fig 1. Water the transplanted cuttings immediately after planting unless the soil moisture is adequate. Keep watering each morning and evening until plants are fully established. Cutworms are common occurrence pests in plots of transplanted cuttings. Apply insecticides soon after planting to control cutworms (do this at Corteva Agriscience & Bayer East Africa LTD prescribed rates). Only apply insecticides on need basis. So keep monitoring to see presence of cutworms, aphids etc. When applying for cutworms, ensure the insecticides are well drenched in the soil around the plant and on the entire bed.
Seed plot husbandry and maintenance	<ul style="list-style-type: none"> When lots of rain: control late blight starting from the day of planting and at every 10 days by spraying using Corteva Agriscience & Bayer East Africa LTD prescribed rates. Inspection should be done at least once in a week during the growing season to monitor other diseases such as bacterial wilt and other viruses. Perform weeding and hilling at 2 weeks after planting. Hill by excavating soil from the 1 m paths and pouring onto the beds. Ensure the plant collar is buried with the soil. See Fig 1. Repeat hilling at 4 weeks after planting. Dehaulm the potato plants about 2 weeks before harvesting. As a general rule, check tuber sizes to ensure that about 70-80% of the tubers are between 30-60 mm (after +/- 75-80 days) before dehaulming. Dehaulm manually by cutting the foliage close to the ground/soil line. Harvesting should be done in clear, sunny weather: sunshine helps tubers to harden and dry more quickly. Sorting (removing the rotten, diseased, infected and cut tubers) and grading (per size: <20 mm and above 20 mm is done immediately after harvesting. Record the numbers and weights of the tubers in these two grades.



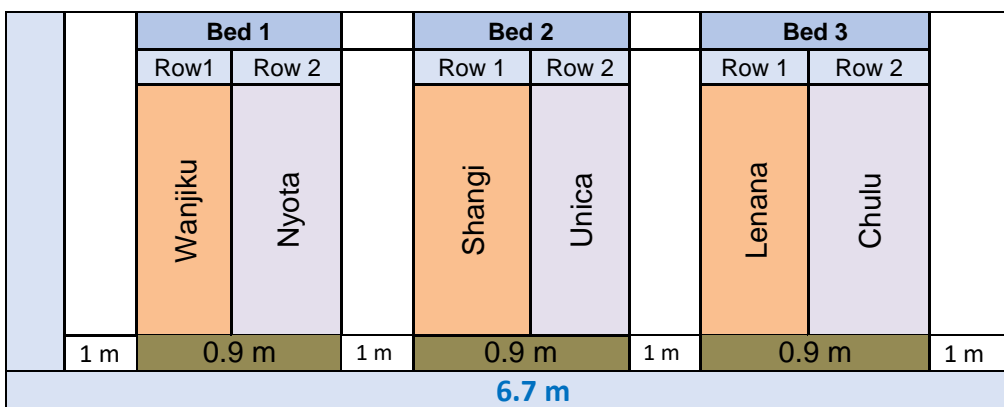
LAYOUT 1: Uasin Gishu, Narok, Bomet and Nyandarua Counties (Ainabkoi, Mau Narok, Bomet Central, Kinangop, Ol Kalou Sites)

2. Seed producer demo; area per site = 13 m*10.5 m =136.5 m²



A bed accommodates 100 cuttings spaced 30 cm between rows and 25 cm within rows; 2 rows per bed; leaving 30 cm to each edge. Each row accommodates 50 cuttings.

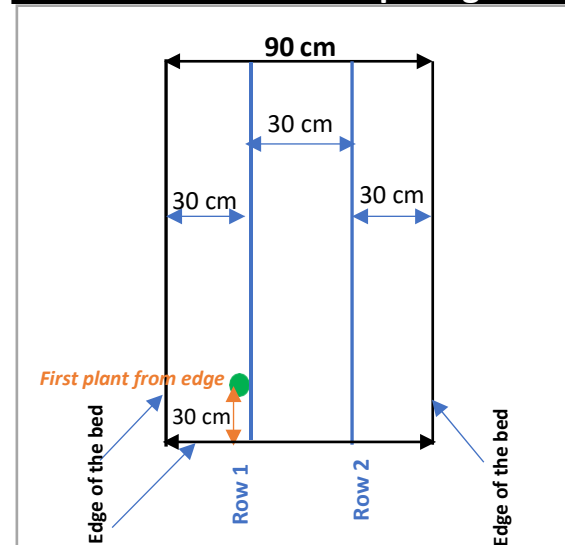
3. Seed plot demo; area per site = 6.5 m*6.7 m=43.55 m²



A seed plot accommodates 50 cuttings spaced 30 cm between rows and 25 cm within rows; leaving 30 cm to each edge. A bed has 2 rows and 1 variety per row. A row accommodates 25 cuttings.

Total area per site = 136.5 m² + 43.55 m²=180.1 m²

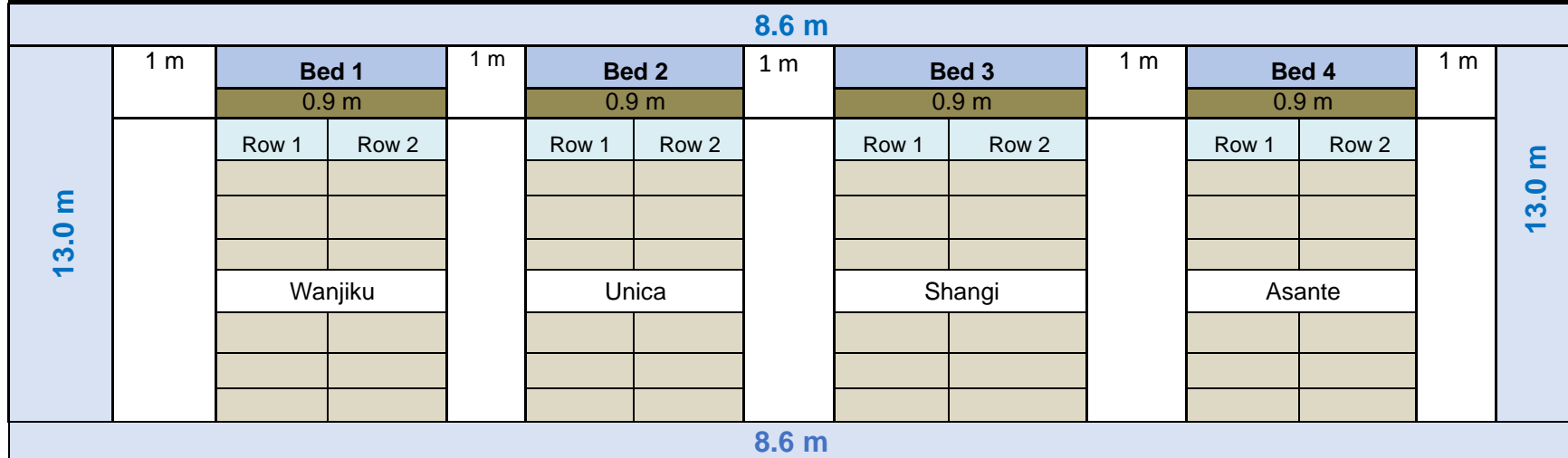
4. Illustration of spacing



NB: Plant-to-plant spacing is 25 cm while plant to the edge is 30 cm. One row to the next is 30 cm

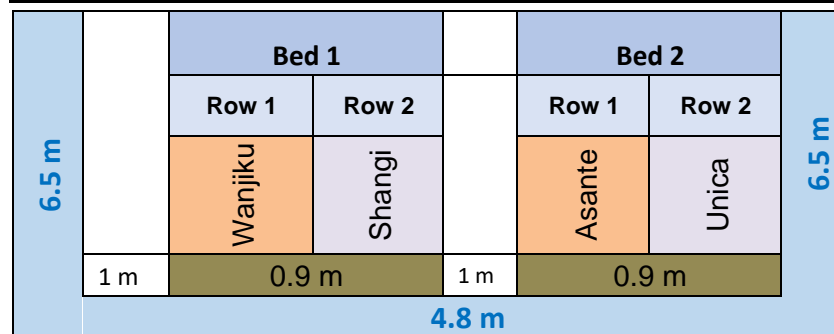
LAYOUT 2: Nyeri County (Kieni East and Kieni West Sites)

5. Seed producer: area per site = 13 m * 8.6 m = 111.8 m²



Seed producer: a bed accommodates 100 cuttings spaced 30 cm between rows and 25 cm within rows; 2 rows per bed; leaving 30 cm to each edge. Each row accommodates 50 cuttings.

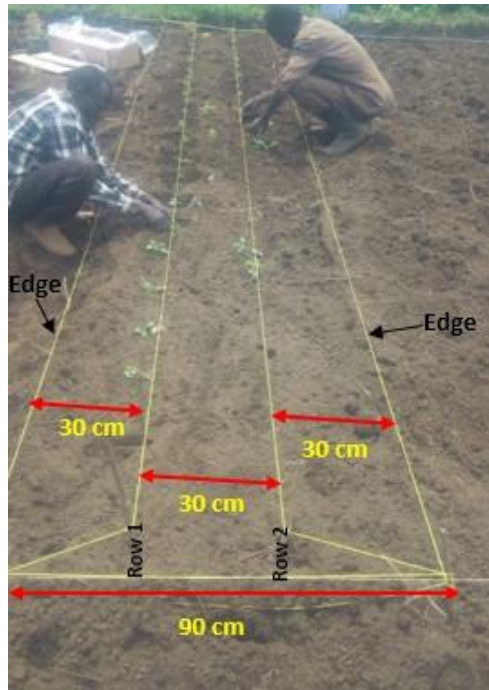
6. Seed plot: area per site = 6.5 m * 4.8 m = 31.2 m²



A seed plot accommodates 50 cuttings spaced 30 cm between rows and 25 cm within rows; leaving 30 cm to each edge. A bed has 2 rows and 1 variety per row. A row accommodates 25 cuttings.

Total area per site in Nyeri = 111.8 + 31.2 m² = 143 m²

Pictorial illustration of spacing and planting



Illustrations of spacing and planting on a laid out bed



Continuation of planting of the cuttings



A bed planted with the cuttings