

Brachiaria seedling nursery

A business case

Brachiaria seeds can be directly sowed in well prepared seed beds however, a better stand can be established if the seeds are first planted in a nursery. Nursery establishment is an additional effort, but as the nursery is on a limited space, it is easy to create the ideal conditions for the germination and development of the seedlings. Nursery establishment has several advantages over drilling of seed to the field.

1. Measure the nursery area, ensuring it's 1x5m and double dig nursery to a fine seedbed. Raise seedbed high by 0.5 m
2. Make the furrows < 2 cm deep along the row at a spacing of 15 cm.
3. Drill 0.5 kg of seeds, evenly in furrows and cover lightly with soil. Ensure seeds are covered by the soil and mulch with grass.
4. Cover the seedbed with shed.
5. Remove the grass mulch after 5–7 days when germination starts to allow seedlings to grow. Manually remove emerging weeds during early stages of establishment.
6. Gradually remove shade covering the seedlings from week 3 to allow in more light. Seedlings will be ready for transplanting within 4–6 weeks.
7. Dig holes 25 x 50 cm in the field and transplant during wet season in cool hours of the day.

Easy possibility to create ideal conditions for seedling production

The limited area of a nursery permits to create and control ideal conditions to support a good germination and development of the seedlings (fine soil structure, ideal humidity of the soil, depth of planting, sun intensity and weed control).

Less seed is used

Grasses including Brachiaria are small seeds and not easy to handle. Therefore, when they are directly drilled the amount of seed used is high. The recommended seed rate is 8 kg/ha respective 3.2 kg/acre. The seeds are drilled in rows 50 cm apart and a spacing in the rows of 25 cm between the plants. This gives a stand with approximately 32,000 plants per acre. When the seeds are planted in a nursery 1 kg of seed can produce 32,000 seedlings. This would save the farm(er) approximately two kg of Brachiaria for the establishment of 1 acre. For Mulato 2 that translates to an economie of 7400 KES and for Cayman and Cobra of 8000 KES.

Timing

Timing is important and will determine how many of the seeds germinate. If the seed is planted and the rains delay the seed loses viability and germination is poor. A poor stand will result in low fodder yield and might need gapping. When seedlings are used, they are planted at the on-set of rain and seedling survival is important. The stand is better and hence earlier and better forage yield.

Seedling production as a business

A number of youths in Bungoma and Siaya are already selling seedlings to farmers who want to establish Brachiaria pastures. The nursery business was evaluated based on the available data from the youth in Siaya. The cost of producing 20,000 seedlings is 17,700 KES, translating to 0.89 KES per seedling. The seedlings are sold at 3-5 KES.

Production cost of Brachiaria Seedlings in Western Kenya (20,000 Seedlings)

Activity/Item	Units required	Unit costs (KES)	Cost (KES)
Land preparation (mandays)	8	250	2,000
Planting labour (mandays)	8	250	2,000
Irrigation (water and labour)	20	250	5,000
Seed (kg Mulato 2)	1	3,700	3,700
Weeding (mandays)	4	250	1,000
Manure (wheelbarrows)	20	200	4,000
Total cost			17,700

This calculation is based on a germination rate of 50 %, which is really at the low end of germination percentages given by the seed producer. 1 Kg of Mulato 2 seeds contain approximately 40,000 seeds. At a germination rate of 85 % 34,000 seedlings can be produced with 1 kg of seeds.

Cost benefit comparison

Cost of production/ seedling (KES)	Cost for 20,000 seedlings/season (KES)	Sales price 3 KES x 20,000 (KES) 100 % sold	Profit (KES)	Sales price 3 KES x 20,000 (KES) 80% sold	Profit (KES)
0.89	17,700	60,000	52,300	48,000	30,300
Cost of production/seedling (KES)	Cost for 20,000 seedlings/season (KES)	Sales price 5 KES x 20,000 (KES) 100 % sold	Profit (KES)	Sales price 5 KES x 20,000 (KES) 80% sold	Profit (KES)
0.89	17,700	100,000	82,300	80,000	62,300

The seedlings can be produced twice a year targeting the two rainy seasons in main dairy hubs in Kenya. The profitability depends strongly on the sold part of the production, which shows that it is favourable to produce seedlings on contract basis.

This factsheet is based on the publication 'Fodder value chain analysis in Western Kenya: Opportunities for business development (David Miano Mwangi, PhD and Eunice Onyango, 2019).

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