

Feed intervention >> Feeds from cropping systems – during growing season

Thinnings, tops and leaf strips



Thinnings of the maize crop in Kiambu district, in Kenya.



A farmer carrying a load of maize thinnings in Kiambu district, in Kenya.



A farmer transporting maize thinnings for feeding livestock in Central Kenya

Description

- ✓ Thinning is the practice of planting of food crops, such as maize, at high plant density and then thinning the crop to ensure high grain yield. The thinnings are used as fresh, high quality fodder.
- ✓ Leaf stripping is the practice of removing lower leaves; detasselling and topping of crops such as maize, finger millet, sorghum, wheat and sugarcane until these crop reach a critical growth stage for grain or sugar production. The leaf strippings are used as fresh, high-quality fodder.
- ✓ These technologies are commonly practiced in crop-livestock systems that experience land scarcity and have very high demand for livestock feed.

Key benefits

- ✓ Obtain high quality feed early in the growing season without compromising grain yield.
- ✓ When intercropping, leaf stripping, i.e. the removal of lower leaves from the maize plant at anthesis or post-anthesis, increases light penetration to the under-storey crop.
- ✓ Similarly, de-tasselling and topping can have a positive effect on the yield of a minor crop, intercropped with a tall cereal crop.

Key limitations

- ✗ Thinning requires good understanding of crop growth and competition.
- ✗ Lack of thinning decreases grain yield because of excess biomass.
- ✗ Over thinning decreases grain yield.
- ✗ Thinning and removal of the thinnings removes large amounts of nutrients from the cropping area which need to be replaced in the form of manure and other fertilizer otherwise subsequent crop yield will decline with time because of 'mining' of soil fertility.

TechFit is a tool to prioritize and select animal feed interventions. It was developed by ILRI under the leadership of Alan Duncan. It has been further refined and developed with inputs from many individuals in and beyond CGIAR. This is one of a series of feed intervention 'TechSheets' developed alongside the TechFit tool to provide summarized information on different interventions included in the tool. Werner Stür led the development of the TechSheets. This sheet was prepared by Ben Lukuyu (ILRI). TechFit is supported by the CGIAR Research Program on Livestock and Fish. ilri.org/techfit



A densely planted maize crop (6 seeds per hole) on a smallholder farm in East Africa. Farmers aim to thin 3 plants for fodder.



A thinned maize crop in East Africa

Where does this intervention fit?

Potential to overcome feed limitations	Score
• Feed scarcity during dry season :	low
• Feed scarcity during cropping season :	high
• Low feed availability :	medium
• Poor feed quality :	medium

Applicability to livestock	Score
Cattle/buffalo	<ul style="list-style-type: none"> • Breeding (cow-calf) : low • Fattening : high • Dairy : high
Sheep/goats	<ul style="list-style-type: none"> • Breeding : low • Fattening : high
Pigs	<ul style="list-style-type: none"> • Breeding (sow-piglets) : medium • Fattening : medium

Applicability to farming system	Score
• Pastoral (extensive grazing systems) :	n/a*
• Agro-pastoral/extensive mixed systems :	medium
• Intensive mixed crop-livestock system :	high
• Landless livestock producers :	n/a

Requirement for resources	Score
• Land :	none
• Water :	none
• Labour :	high
• Cash/credit :	none
• Access to inputs :	none
• Knowledge/skills :	low

* n/a = not applicable

More information

- ✓ Lukuyu, B.A., 2000. The Maize Crop as a Source of Food and Feed for Livestock on Smallholder Dairy Farms in the Kenyan Highlands. M Phil dissertation. University of Greenwich.
- ✓ <https://cgspace.cgiar.org/handle/10568/1731>
- ✓ www.kalro.org/fileadmin/publications/brochuresII/Growing_maize_for_food.pdf
- ✓ www.kalro.org/fileadmin/publications/brochuresI/MaizeForage.pdf
- ✓ Romney, D.L., Thorne, P., Lukuyu, B. and Thornton, P.K. 2003. Maize as food and feed in intensive smallholder systems. *Field Crops Research* 84: 159–168.

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