

UNDERSOWING FORAGE MAIZE

Benefits

- Improved water retention
- Improved water infiltration
- Improved trafficability for maize harvest in wetter seasons
- Increased total forage yield per hectare
- Nitrogen scavenging (~40 kg N/ha) and reduces leaching
- Nitrogen fixation
- Over-winter cover – reduced soil erosion
- Winter grazing
- Increased diversity of root types and their interactivity can support and increase both number and diversity of beneficial soil microbes and invertebrates that support nutrient cycling and predate soilborne plant pathogens.

Establishment of undersown companion

- Maize 4-8 leaves
- Avoid post-emergence herbicide after maize sowing
- Sow companion crop in strips and leave 15 cm clear either side of maize plants.

Undersown companion species

- Should be quick to establish before being overshadowed by the growing maize crop
- Has to cope with relatively dry conditions as the maize will take most of the soil moisture
- Needs to grow away well after maize harvest.

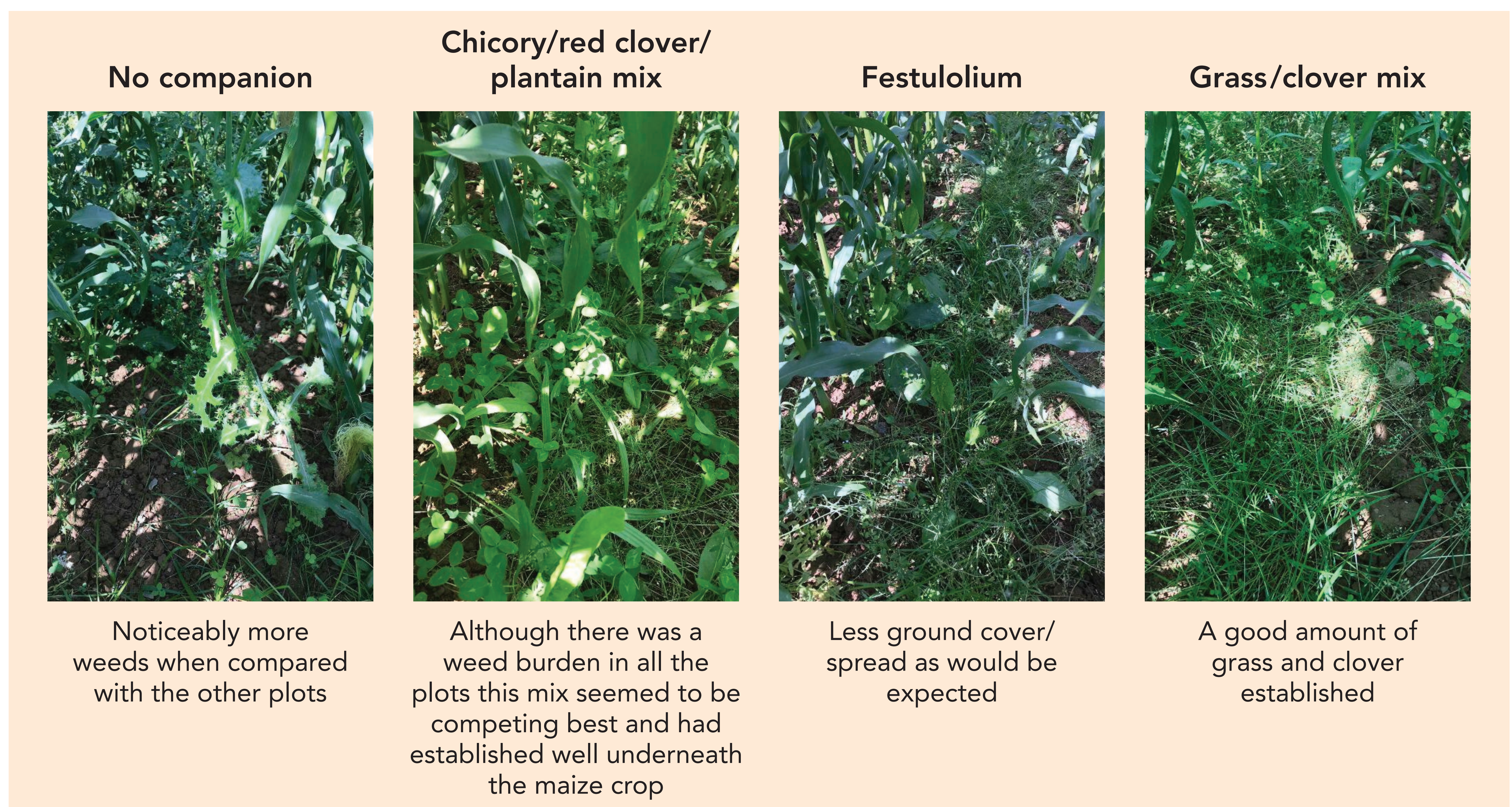
Some suitable companion species

- Festuloliums (hybrids of ryegrass and fescue)
- Fescues – slow growing, hardy grass species
- White clover (medium leaf size) – slower to establish but spreads well after maize harvest.

Suitable mixtures

- A Niab Agronomy Membership trial compared a) festulolium only, b) festulolium + white clover, c) red clover, chicory and ribwort plantain against a control treatment with no undersowing.
- The red clover – chicory – plantain undersow mixture treatment produced a total forage yield 19.46 t DM/ha with maize yield at 15.78 t DM/ha against the control maize only treatment at 15.41 t DM/ha – nearly 4 t DM/ha of additional forage dry matter.

Figure 1. Undersown companion crops



General notes: Companion crops better established where maize population is 85,000/ha compared to 105,000/ha