What is Conservation agriculture (CA)?

It is a sustainable agriculture production system comprises a set of farming practices adapted to the requirements of crops and local conditions of localities, whose farming and soil management techniques protect the soil from erosion and degradation, improve its quality and biodiversity, and contribute to the preservation of the natural resources, water and air, while optimizing yields. It has key components of zero tillage (or at least minimum soil disturbance), retention of crop residues for soil cover (mulching), and rotation (or sometimes intercropping) of cereals with legumes. It can be a means to soil improvement and increased crop productivity.

CA Crop Management Information

The CA practices were evaluated for maize and soybean in Pawe area of North western Ethiopia. On-station trials were conducted to compare CA with the current smallholder conventional practice (CP) for productivity of maize-soybean cropping systems. Research results showed maize-soybean rotation under CA tillage practice found to be with better return than the conventional.

**Weed management:** Apply glyphosate (round up) at the rate of 2.5–3.0 lit ha⁻¹ depending on weed density and type at 2 weeks before planting, and then manually control the weed as needed.

**Planting:** Use hand-hoe, planting stick or one-pass oxen plough with “maresha”. Planting time should be between first and last weeks of June depending on onset of rainfall. Intercrop soybean can either be planted with maize or two to three weeks later depending on onset of rainfall.

**Spacing:** 75 x 30 cm for maize (e.g. BH-540) and 60 x 5 cm for soybean (e.g. Belesa-95), and the 5 cm intra-row spacing can be used for intercropping soybean.

**Sustainable Intensification of Maize Legume cropping Systems for Food Security in Eastern and Southern Africa (SIMLESA)**
**Fertilizer Application**

- Fertilizer 100 kg DAP ha\(^{-1}\) can be side dressed and covered with soil or can also be band applied at planting at 5 cm depth and 50 kg urea ha\(^{-1}\) should be side dressed at 5 cm depth and covered with soil at the 5-leaf stage of maize.
- Only 100 kg DAP ha\(^{-1}\) side dressed at planting time for soybean.

**Crop Residue Management**

- Farmers should retain 50–75% maize and 100% soybean residue after each season harvest of the maize-soybean rotation system.

**Benefits of CA maize-soybean rotation cropping system**

1) Improved soil fertility
2) Improve resource use efficiency
3) Reduced soil degradation.
4) Reduced cost of production
5) Break disease life cycle.

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**Promotion of CA Maize-soybean rotation**

The best bet technologies associated with conservation tillage should be promoted so as to capture the benefit. So far farmers, agricultural experts and development agents were participated in field evaluation and popularization. Effort needs to exerted to further scale up CA maize-soybean rotation in the study area and similar agroecologies.

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