Integrated Weed and Pest Management Practices is Key to Promoting the Wide Adoption of Conservation Agriculture in Southern Africa

[This policy brief supports integrated weed and pest management practices for promoting wide adoption of Conservation Agriculture by smallholder farmers in Southern Africa. The brief targets national level decision-makers, government directors and extension officers]

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Summary

Over the years there have been concerns about the growing soil and environmental implications of conventional agriculture practices. However, as the concerns grow, regional level policy has promoted Conservation Agriculture (CA) over conventional agriculture based on research evidence (field trials and demonstrations), which reveals many benefits of practicing CA for smallholder farmers. However, to date, adoption of CA among smallholder farmers still remains a dilemma in many countries in the region because of a number of issues. Enhanced weed and pest problem is one of the issues that contribute to poor adoption of CA. This problem is prevalent during the "transition phase" to CA and is regarded as a short-term problem that can be managed by adopting appropriate integrated weed and pest management practices. Inappropriate weed and pest control can have a devastating effect on the smallholder farmer's production, and threaten their food security and livelihoods, as a result reduce their confidence in practicing CA.

In response to this, the overall policy recommendation is to develop or improve, and effectively implement national policies that support integrated weed and pest management to promote the adoption of CA.

What is Conservation Agriculture?

Conservation Agriculture (CA) is widely referred to as the application of a combination of agricultural technologies to enhance production by optimizing yields and profits, while simultaneously protecting and enhancing the land resources on which this production depends. CA is different from conventional agriculture, which focuses on maximizing yields, while exploiting natural resources. It is mainly based on three principles that are believed to enhance biological processes below and above ground: *(a) minimum or no mechanical soil disturbance; (b) permanent organic soil cover and (c) diversified crop rotations.*

Figure 1: Farmer explaining the benefits of Conservation Agriculture to smallholder farmers & other stakeholders

Benefits of Conservation Agriculture

The benefits of CA are documented in many national, regional and international research studies and many donors continue to invest in the promotion and adoption of CA technologies. The benefits of CA are as follows:

- Reduces on-farm costs: saving in time, labour and mechanized machinery.
- Improves soil fertility and moisture retention, resulting in long-term yield increase, decreasing yield variation and greater food security.
- Stabilizes soil and reduce erosion.
- Contribute in the reduction of surface water and groundwater contamination.
- Contributes to the reduction of air pollution as a result of use of tillage machinery.

Contributes towards the conservation of terrestrial and soil-based biodiversity

Conservation Agriculture, and Weed and Pest Problems

Despite the many benefits, poor adoption of CA in Southern Africa region is a point of major concern. This is due to problems related to weed and pest management during the "transition phase" from conventional tillage to CA. This is also common for farmers moving into organic farming.Weed and pest problems are biological symptoms of the change in the ecosystem management under CA. However these symptoms are short-tem (first 4 – 5 years of practicing CA). Farmers practicing conventional agriculture also experience weed and pest problems but rely heavily on tillage operations to deal with the problem. Because smallholder farmers experience these problems at the initial stage of practicing CA, they are often discouraged to continue practicing CA. Some smallholder farmers respond to this by increasing the application of agro-chemicals such as herbicides, fungicides and pesticides, and other prefer to use organic based products. Despite the farmers preference, integrated weed and pest management practices are crucial to ensuring success of CA and wide adoption in the early stages of practicing CA. Therefore, for smallholder farmers to adopt and reap the long-term benefits of CA, there is a need to improve national policies to enable smallholder farmers to access appropriate weed and pest control technologies to deal with this short-term problem.

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Policy Recommendations

In response to the weed and pest management problems resulting in poor adoption of CA, the following national level policy recommendations are proposed:

- Subsidise the price of agro-chemicals for weed and pest control.
- Develop and implement policies that promote the development of cost-effective intelligent sprayers locally or reduce import tariffs on imported products.
- Capacitate extension officers with weed and pest management knowledge and skills.
- Encourage and support national research institutions to conduct field trials on CA for continuous improvements.
- Capacitate smallholder farmers with practices related to weed and pest management under CA.
- Enhance knowledge, attitude and practice (KAP) changes with regard to CA along the whole continuum from smallholder farmers through to government officials.

Conclusion

Practicing CA yields many benefits for smallholder farmers. Integrated weed and pest management are key to ensuring that smallholder farmers get over the short-term weed and pest problems that affect that adoption of CA. As a result, farmers will enjoy the long-term benefits of practicing CA and promote wide adoption CA (as has happened to some sectors of the farming world in countries as diverse as Brazil and South Africa).

References

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