



bio watch
SOUTH AFRICA

Fact Sheet: Conservation Agriculture

and why we say NO!

biodiversity | food sovereignty | agroecology | social justice



What is conservation agriculture?

Ploughing the ground to prepare it for planting crops has come to symbolise agricultural activity for many people. However, prolonged tilling of the soil, especially the intensive and highly mechanised tilling typical of modern industrial agriculture, destroys the structure of the soil and the living organisms within it. Over time this leads to soil degradation and erosion.

The Food and Agriculture Organisation (FAO) and a number of other international agencies are promoting conservation agriculture (CA) – also known as no or minimum tillage – in a world-wide effort to combat increasing soil degradation, which contributes to low crop productivity, water loss and climate change.

The FAO promotes three main principles in conservation agriculture:¹

1. Minimum soil disturbance:

Ideally soil should not be disturbed at all, and at most controlled tilling should not disturb more than 20-25% of the soil. Techniques used include direct seeding of crops by penetrating the soil cover only where the seed is planted.

2. Permanent organic soil cover:

At least 30% of the soil surface should be permanently covered with organic material (through mulch or cover crops) to prevent the soil from being washed away, to encourage a microclimate that benefits soil organisms.

3. Diversification of crop species grown in rotation or as inter-crops:

This is aimed at pest control and improving soil nutrients by using crops that pull up nutrients or fix nitrogen.

On the face of it, these are admirable objectives that are also used in the practice of agroecology to contribute to the principles of optimising nutrient flows through the recycling of biomass, improving soil conditions and minimising resource losses.² According to the FAO, conservation agriculture is an approach to managing agricultural systems “for improved and sustained productivity, increased profits and food security, while preserving and enhancing the resource base and the environment”.³

“On the face of it, these are admirable objectives that are also used in the practice of agroecology. However, under the guise of sustainable farming practice, conservation agriculture also promotes the use of chemical herbicides, fertilisers and GM crops.”

Conservation agriculture works against nature and can be toxic

1 Crop rotations are often still focused on a single main “cash” crop such as hybrid maize or soya, rather than promoting a diversity of food crops and diversity of the varieties grown within each crop type.

2 Conservation agriculture promotes the use of chemical herbicides and fertilisers.

Although many proponents argue that herbicides are only used to transition to conservation agriculture, agri-business multinationals are more overt in using conservation agriculture to market their products. In a description of the history of its glyphosate-based herbicides Monsanto states as fact that “Roundup agricultural herbicides enable and encourage the practice of conservation tillage” because of their “broad-spectrum effectiveness in controlling weeds.”⁴

Although the link between conservation agriculture and increased herbicide use is contentious, it is also interesting to note that conservation agriculture emerged from Brazil and that the four Latin American countries that lead the adoption of conservation agriculture are also leading producers of GM crops (mostly herbicide tolerant GM Soya) – see table below. In fact, in 2008 Brazil became the biggest per capita consumer of agricultural toxins, using 20% of global production.⁵

In Latin American, the main system of producing RR soybean uses the no-till technique. This has enabled monocrop soya plantations

Leading countries in conservation agriculture adoption:⁶

Country and rank in the adoption of conservation agriculture	% of arable land under conservation agriculture	Area under conservation agriculture (million hectares)	Area of GM crops (million hectares)	Ranking in global GM production
1. Argentina	71%	27	24.4	3
2. Paraguay	68%	3	3.6	7
3. Uruguay	61%	1.07	1.5	10
4. Brazil	43.8%	31.8	40.3	2

References

1. FAO. n.d. *The main principles of conservation agriculture*. Available: <http://www.fao.org/ag/ca/1b.html>. [16 May 2015].
2. Altieri, MA. 2005. *Agro-ecology: principles and strategies for designing sustainable farming systems*. Available: <http://www.biosafety-info.net/article.php?aid=291>. [15 February 2015].
3. FAO. n.d. *What is Conservation Agriculture?* Available: <http://www.fao.org/ag/ca/1a.html>. [16 May 2015].
4. Monsanto. 2005. *History of Monsanto's Glyphosate Herbicides*. Available: http://www.monsanto.com/products/documents/glyphosate-background-materials/back_history.pdf. [16 May 2015].
5. GRAIN. 2013. The United Republic of Soybeans: Take two. *Against the GRAIN*. 2 July. Available: <http://www.grain.org/article/entries/4749-the-united-republic-of-soybeans-take-two>. [19 May 2015].
6. Compiled from: Richards, M. et al. 2014. *Overview of Conservation Agriculture. Practice Brief: Climate Smart Agriculture*. Available: <http://www.fao.org/3/a-i4066e.pdf> [19 May 2015]; and James, C. 2013. *Executive Summary. ISAAA Brief. 46*. Available:

to intensify and extend into areas where it was not possible to produce before, displacing rural peasant farmers and also exposing communities to “chemical warfare” through intensive herbicide spraying.⁷ At the same time, aggressive lobbying by agri-business to promote conservation agriculture in climate mitigation sought to have conservation agriculture, and thus the destructive Latin American soya production system, qualify for carbon credits under the Clean Development Mechanism.⁸

Conservation agriculture in SA

The FAO's strategy in South Africa has been to formulate a national strategy to accelerate adoption of conservation agriculture and to “mobilise, stimulate, motivate and train a group of champions that will take the lead in introducing and promoting conservation agriculture.”⁹ Agribusiness objectives to expand the uptake of industrial inputs are explicit in the implementation of this campaign. Grain SA has undertaken the task of promoting conservation agriculture, especially amongst small-holder farmers, supported by the Agricultural Research Council (ARC). Their efforts are materially backed by multinational companies including Monsanto and Omnia. Grain SA asked those offering support to reduce the prices of inputs “necessary” to begin implementing conservation agriculture. Small-holder farmers in KZN were supplied with 4 bags of fertiliser, 2 bags of nitrogen, 4 litres of glyphosate and other pesticides, and 10kg of herbicide tolerant GM maize, all for the “discount price” of R1500.¹⁰

The use of herbicides in conservation agriculture paves the way for herbicide tolerant GM crops. The ARC-Grain Crops Institute assumes the use of herbicides. In its 2013 Maize Information Guide, ARC advises that when changing to conservation agriculture “expenditure on herbicides usually increases. Without the inclusion of a glyphosate tolerant crop in the rotation system, the conversion to a conservation agriculture system will be very difficult.”¹¹

Biowatch supports a holistic agroecological approach to farming, including the use of locally adapted farmer varieties of seed and locally available natural resources. **Biowatch cannot support conservation agriculture that surreptitiously promotes the use of chemical herbicides, fertilisers and GM crops under the guise of sustainable farming practice.** This form of conservation agriculture leads small-holder farmers into debt and jeopardises both household food security and the longer term food sovereignty of rural communities.

<http://www.isaaa.org/resources/publications/briefs/46/executivesummary/> [19 May 2015].

7. Rulli, J. 2009. *South American GM Soy close to get carbon credits – agribusiness lobby in the climate negotiations*. Available: http://gmwatch.org/index.php?option=com_content&view=article&id=11563:monsanto-penetrating-carbon-credit-mechanism [19 May 2015].

8. Ibid.

9. FAO. 2015. *Projects*. Available: <http://www.fao.org/ag/ca/7.html> [19 May 2015].

10. Mentz, J. 2015. Grain SA's efforts to promote and support conservation agriculture among smallholder farmers in KZN. Available: <http://www.farmersweekly.co.za/article.aspx?id=71843&h=SA%E2%80%99s-experts-on-implementing-conservation-agriculture> [18 May 2015].

11. ARC-Grain Crops Institute. 2013. *Soil cultivation and conservation agriculture. Maize Information Guide 2013*. Available: <http://www.arc.agric.za/arc-gci/Pages/MIG.aspx> [19 May 2015].