

## Conservation Cropping Protocol July 10, 2012

### Summary

- Carbon payments for conservation farming will carry on as the new Conservation Cropping protocol replaces the 2002-2011 Tillage protocol
- The carbon harvest now ranges from 0.11 to 0.06 tonnes/acre
- Like all other carbon offset protocols, record keeping requirements have increased to the positive proof level
- No historic credits are available
- A new payment for reduced area of summerfallow is available in the Dry Prairie region

### Introduction

For farming techniques to be eligible for payment under Alberta's carbon offset system they have to be new, or 'additional'. As more and more producers adopt a practice it becomes less and less capable of qualifying under the international standards of Alberta's Offset System. Direct seeding practices that producers have been paid for under the previous Tillage protocol have become more business as usual and less innovative over time. This created some expectation that the carbon payments for direct seeding would finish after the 2011 crop year, however they will continue at reduced levels until at least 2017.

### Carbon Harvest from No Till Seeding

The 'carbon harvest' for Alberta producers direct seeding now works out to around 0.11 tonnes/acre/yr in the Parkland and 0.06 in Dry Prairie areas for the no till seeding category of soil disturbance<sup>1</sup>. Irrigated areas in the Dry Prairie harvest carbon at the Parkland rate.

Parkland area

1000 acres X 0.11 tonnes/acre = 110 tonnes carbon<sup>2</sup>

110 tonnes carbon X \$9.00/tonne<sup>3</sup> = \$990 or \$1.00/acre

Dry Prairie area

1000 acres X 0.06 tonnes/acre = 60 tonnes carbon

60 tonnes X \$9.00/tonne = \$0.54/acre

'No Till' has the same disturbance specifications as before, one pass with an opener with up to 46% soil contact, or two passes with an opener (either seeding, fertilizing, or applying manure) of up to 38% soil contact. The former 'Reduced Till' category is no longer eligible. Up to 10% discretionary tillage in each field is allowed to manage ruts in unseeded wet areas, etc.<sup>4</sup>

## Record Keeping

Many of the records needed for the Conservation Cropping protocol are similar to those that were required for the Tillage protocol. However, in some cases farm operators and project developers will have to exert more effort to meet Alberta Environment and Sustainable Resource Development's requirement for records that meet a new standard of positive proof. For example, land ownership still has to be proven much as before, and in the case of rented or crop-shared land, an agreement still has to be in place assigning the carbon rights. These were by nature positive proof records. However, for seeded field areas, proof of area now needs other records besides crop insurance numbers, such as how the area figure was calculated. The summary below<sup>5</sup> gives an idea of the records a producer needs to collect. For the exact requirements and an example field record sheet, see the full protocol linked at the end of this document.

1) Crop: Annual crop or seeding year of a perennial.

- detailed farm record sheets<sup>6</sup> or crop plan, together with *either*:
  - crop insurance
  - a location linked time-stamped photo
  - other records which may include P.Ag. sign off.

2) Seeding/Fertilizing Implement:

- calculation of soil contact, together with *either*:
  - equipment receipts
  - time-stamped photos showing opener width and shank spacing
  - other records which may include P.Ag. sign off.

3) Land and Carbon Ownership/Arrangement:

- land title certificate, and signed contract with the carbon project developer. If rented:
  - a signed agreement stating who (renter/landowner) gets the carbon rights

4) Location and Size of Field: Seeded field area from *either*:

- Google Earth
- air photos or satellite data
- GPS track files from seeding equipment
- GPS shape files from field inspection.

5) Field Operations:

- record sheet showing all land disturbance operations, with equipment specifications and *either*:
  - proof of the specific equipment used
  - other records, which may include P.Ag. sign-off
- yes  no for discretionary tillage If yes, then proof of area worked up, *either*:
  - calculation on farm record sheet
  - GPS readings from farm equipment

Extras

6) Reseeding: If disturbance is still under allowable amounts<sup>7</sup>, *either*:

- equipment specs and seeding dates
- other records with P.Ag. signoff

7) If in the Dry Prairie and irrigating, two of:

- water use records
- air photos or satellite images of pivots
- Alberta Irrigation Program documents
- detailed farm irrigation maps
- crop insurance records showing use of irrigation,
- GPS time stamped photos of equipment used, with model information

*or*

- other records with P.Ag. sign off.

## Carbon Harvest from Summerfallow Reduction

A carbon harvest for summerfallow reduction is new for 2012<sup>8</sup>. Only available in the Dry Prairie region, it compares a baseline area of three years of summerfallow within a farm enterprise to that of five years going forward, with the payment being on the amount of reduction in summerfallow area. The extra carbon harvest from inputs of soil carbon by increased areas of growing crops can only be sold at the end of the five year period, although the value of no till seeding is available every year.

The three year baseline can be historic, and can use chem or tilled fallow. Seeding tillage can be conventional. Field record sheets with crop inputs and yields as well as crop insurance or agrologists reports are needed to show yields were typical, as well as the area of summerfallow. The three years must have been directly previous to the years that carbon is claimed, and follow one after the other, unless it can be demonstrated that a year was not typical.

For each of the five years ongoing seeding and summerfallow practices and records must satisfy the 'No Till' requirements of the protocol. The fields used for the baseline and offset claim years must be the same in all years and this needs to be shown on detailed maps.

For example, for a 2000 acre farm in 2012 with a tradition of half summerfallow/half crop rotation:

Baseline Records would document:

Year 2009, 1000 acres fallow.

Year 2010, 800 acres fallow

Year 2011, 1200 acres fallow

$(1000+800+1200)/3 = 1000$  acres.

So even though the area of fallow varied every year, on average over the previous three years, 1000 acres of the 2000 acres were summerfallow. The 1000 acres is now the summerfallow baseline.

Going forward:

The farm aims to cut the fallow area in half, and does the following:

Year 2012, 600 acres fallow

Year 2013, 500 acres fallow

Year 2014, 400 acres fallow

Year 2015, 300 acres fallow

Year 2016, 700 acres fallow.

$(600+500+400+300+700)/5 = 500$  acres.

The new summerfallow average is 500 acres out of the 2000 acres.

So the baseline of 1000 acres minus the new average of 500 acres equals a total of 500 acres taken out of fallow and no-till seeded to annual or first year perennials for 5 years.

$500 \text{ acres/year reduction} \times 0.26 \text{ carbon harvest/acre} \times 5 \text{ years} = 650 \text{ tonnes carbon total}$

$650 \text{ tonnes carbon total} \times \$9.00/\text{tonne} / 500 \text{ acres} = \$11.70/\text{acre}$ , or

$\$11.70/\text{acre} / 5 \text{ years} = \$2.34/\text{acre/year}$

<sup>1</sup> Technical Seed Document page 19

<sup>2</sup> Carbon Dioxide equivalent (CO<sub>2</sub>e)

<sup>3</sup> Final price per tonne is a combination of the selling price of the carbon (CCEMC research fund price of \$15.00/tonne minus a discount for offset risk) minus the charge for aggregation. While the ending price can vary, \$9.00/tonne has been a common final selling price recently.

<sup>4</sup> Conservation Cropping Protocol (CCP) page 4

<sup>5</sup> CCP protocol pages 36-39

<sup>6</sup> CCP protocol pages 65-70

<sup>7</sup> CCP protocol page 64

<sup>8</sup> CCP protocol page 7, 39-41, 71-75

Link to the whole Conservation Cropping Protocol (CCP) with more details:

<http://environment.gov.ab.ca/info/library/8561.pdf>

Link to the Technical Seed Document, (TSD) with more explanations and examples:

[http://carbonoffsetsolutions.climatechangecentral.com/files/microsites/OffsetProtocols/12-04-02\\_Conservation\\_Cropping\\_v1\\_TSD.pdf](http://carbonoffsetsolutions.climatechangecentral.com/files/microsites/OffsetProtocols/12-04-02_Conservation_Cropping_v1_TSD.pdf)

Link to the soil boundary line between Parkland and Dry Prairie areas:

[http://www1.agric.gov.ab.ca/\\$department/deptdocs.nsf/all/cl11708](http://www1.agric.gov.ab.ca/$department/deptdocs.nsf/all/cl11708)

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*Funding for this project has been provided by Agriculture and Agri-Food Canada through the Agricultural Flexibility Fund, as part of Canada's Economic Action Plan. This is a cost-shared project between Agriculture and Rural Development and Agriculture and Agri-Food Canada.*