

Integrated crop-livestock-forest-systems (ICLF) in temperate regions

– how they address the challenges of a sustainable future.

Tom Goddard, Alberta Agriculture & Forestry, Canada

world congress on integrated
crop-livestock-forest systems
3rd International Symposium on Integrated Crop-Livestock Systems
towards sustainable intensification • brasililia • brazil • 2019

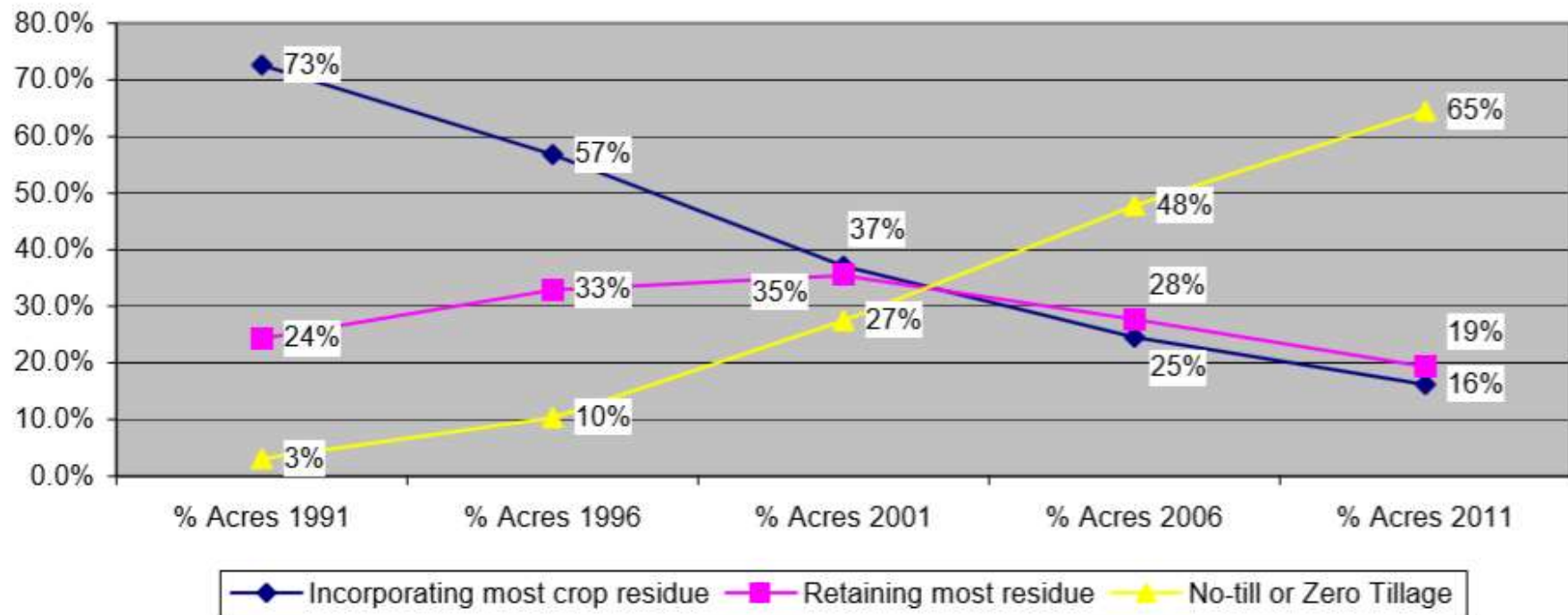






Conservation Tillage Practices in Alberta 1991-2006

Statistics Canada



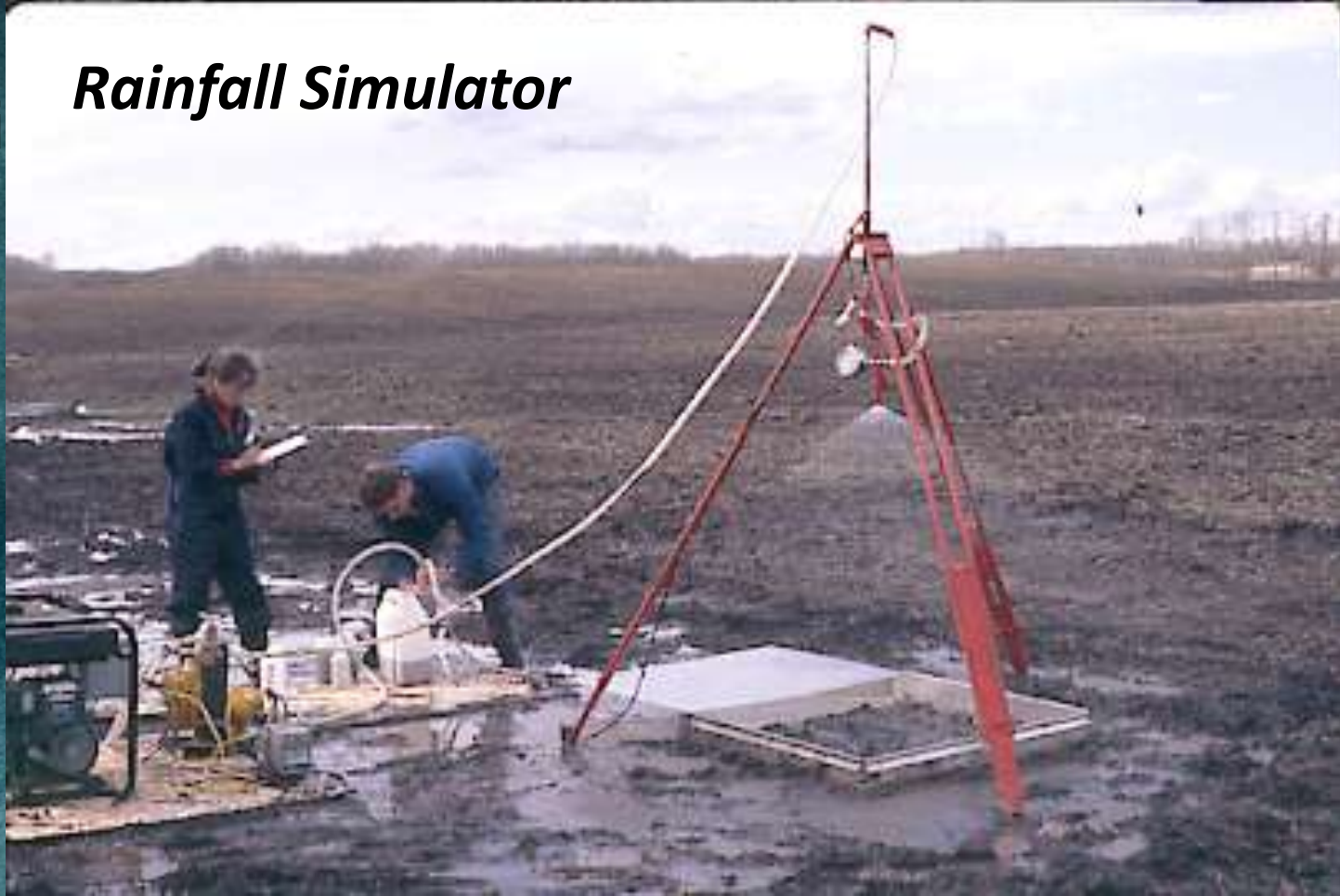






Rai

Rainfall Simulator



Nolan & Goddard



Conventional

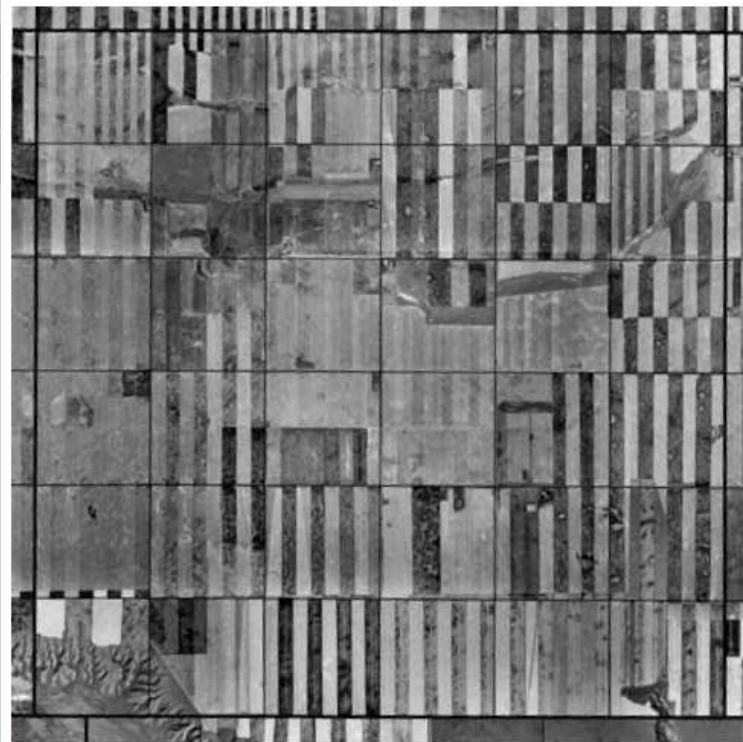


Reduced



No Till

1992

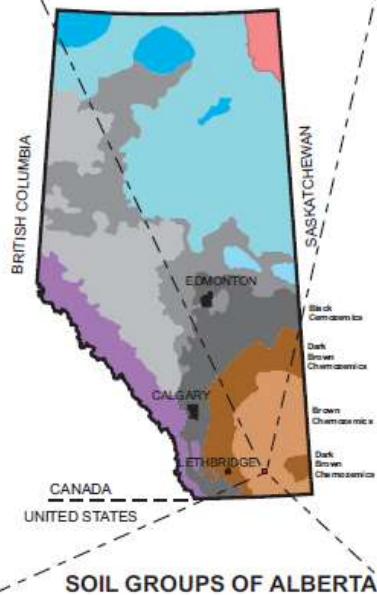


SOURCE: mosaic of May 1992 aerial photography – 1:30,000 scale

2010



SOURCE: 2010 Imagery provided by Valtus, a division of North West Geomatics Ltd.



Data Delivery Through the AgroClimatic Information Service (ACIS)

weatherdata.ca



■ Canola Crop (per acre)

- Seed - \$54.00
- Fertilizer - \$97.00
- Herbicide/Fungicide \$47.00

■ Water - \$24.00 acre



■ Hay Crop

■ \$61.00/tonne

■ Water - \$11.00/tonne



Water is generally the cheapest input, yet it is perhaps the most overlooked.

Environmentally Smart Nitrogen Study (ESN)

One set of treatments and replications in Vauxhall, one in Brooks

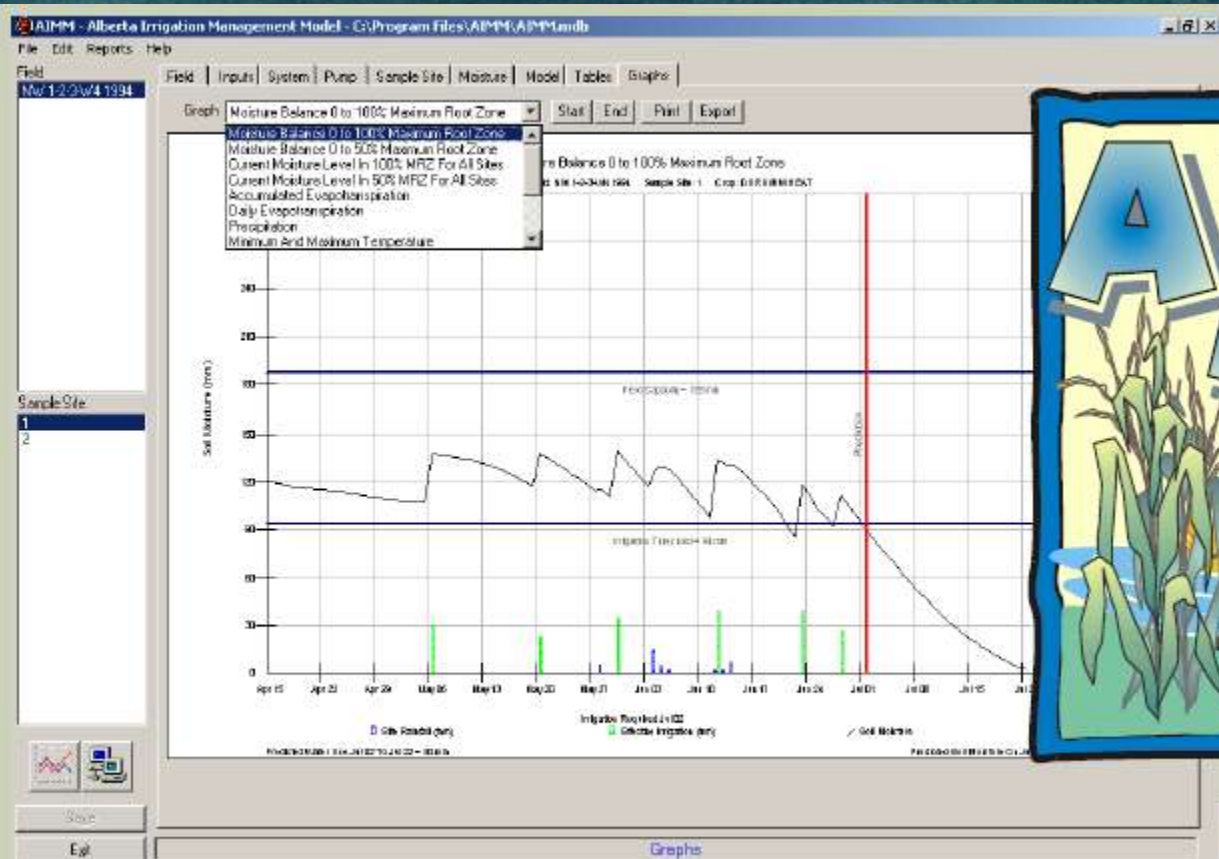


2009

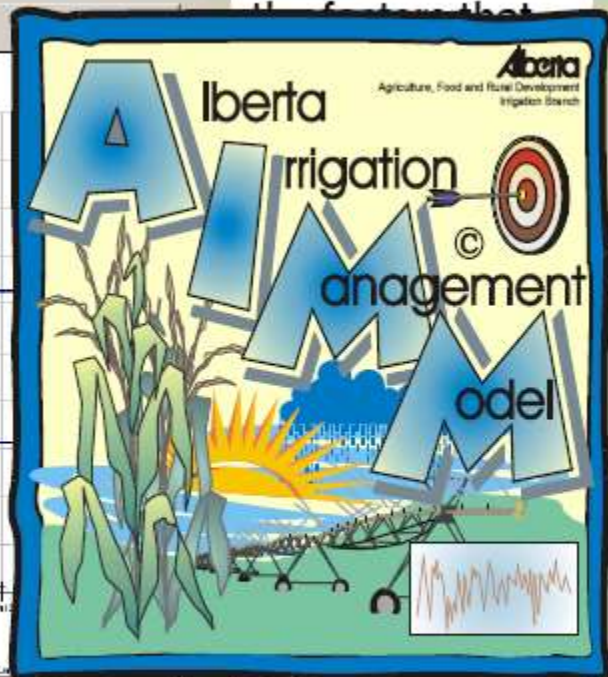
Yield - 6 ton per acre

Revenue - over \$1000
per acre

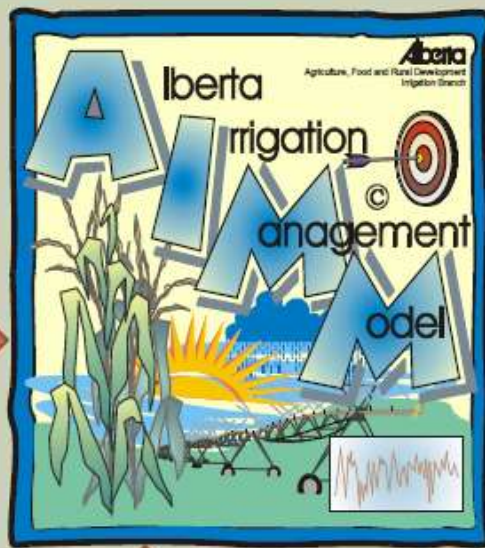
Estimate soil water status



Account for all



Take that water use
out of the soil



Field	Fertilizer Site	Field Capacity (mm)	Current Moisture (%)	Irrigation Frequency (mm)	Prediction Date	Irrigation Required	Water On	Water Date Date	Time Irrigation Level	Total Precipitation (mm)	Old Account Moisture (mm)	Last Update Date
NE 15-11-10-4	CURLEW	120	9	111	05-Jul-00	Yes	<input type="checkbox"/>		0	45	45	04-May-00
NE 14-11-10-4	HYBRID CAN	120	125	95		No	<input type="checkbox"/>		0	10	10	19-May-00
NE 15-11-10-4	DAVAN	150	36	90	05-Jun-00	No	<input type="checkbox"/>		0	11	11	12-May-00
NE 15-11-10-4	CAWOLA	150	68	100	03-Jun-00	Yes	<input type="checkbox"/>		0	11	11	13-May-00
NE 15-11-10-4	CURLEW	150	166	99		No	<input type="checkbox"/>		0	12	12	12-May-00
NE 5-11-10-4	WINDY	150	64	90	03-Jun-00	Yes	<input type="checkbox"/>		0	11	11	13-May-00
NW 12-11-10-4	HYBRID CAN	150	132	114	03-Jun-00	Yes	<input type="checkbox"/>		0	16	16	13-May-00
NW 14-11-10-4	WINDY	150	115	54	08-Jun-00	No	<input type="checkbox"/>		0	47	47	04-May-00

Pivot Control Software

irrigation scheduler mobile

Add New Field

[Help](#)

Check box to start with existing field:

Name:

Year:

Network:

Station:

Crop:


Soil:

 [Dashboard](#)

 [Daily Budget Table](#)

 [Soil Water Chart](#)

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