



THE LIFE CYCLE ANALYSIS OF WHEAT

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agronome

Les Moulins de Soulanges et La
Milanaise

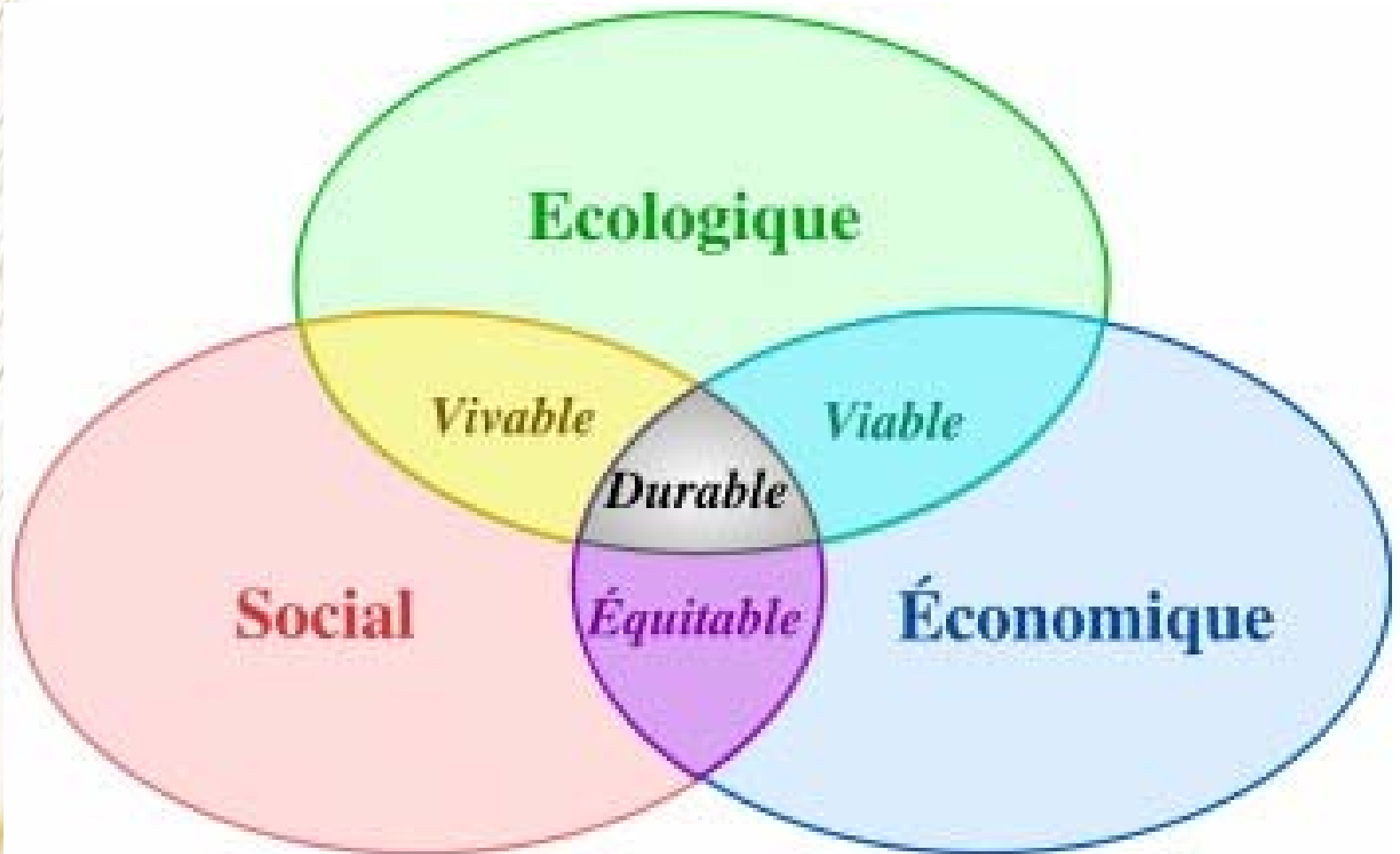




Historic of our pesticide free program with premium

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- Since 2007 (Agrinature = certification)
 - Since 2011 (Agriculture Raisonnée™ = trade mark)
 - Starting 2017 (Bonus for transitional wheat)

Sustainable agriculture approach



Social aspect



On farm research a win win approach

- ✓ Learn from experience
- ✓ Volunteer approach
- ✓ Tools to get results and more pesticide free wheat

Comparative plots on farm



AGRICULTURE
RAISONNÉE



with herbicide



without herbicide

Test with COOP's



without herbicide



with herbicide



I. LIFE CYCLE SINCE 2013

1. MARGINS \$/HA

2.
ENVIRONMENTAL
FOOT PRINT



1. Profitability of the production

- 4 systems

Organic

Agriculture
Raisonnée

Conventionnel

Intensive

- Cost analysis on variable expenses.



3 years of results

- 30 farms
- 12 agronomist
- 7 régions
- Contribution from a gouvernement programme pour le soutien aux stratégies sectorielles de développement (PSSSD) only in 2013
- Life cycle analysis in 2013 by l'Institut de recherche et de développement en agroenvironnement (IRDA)
- Contribution de 80 000\$ par La Milanaise since 2013
- Contribution 120 000\$ par les Moulins de Soulanges since 2013



Farm distribution

Région	Agriculture Raisonnée	Organic farms
Montréal ouest	2	1
Montréal Est	1	1
Mauricie	2	2
Lanaudière	3	1
Bas St-laurent	2	2
Lac St-Jean	4	2
Estrie	4	2
Temiscamingue	2	0

Méthodology- participants choice

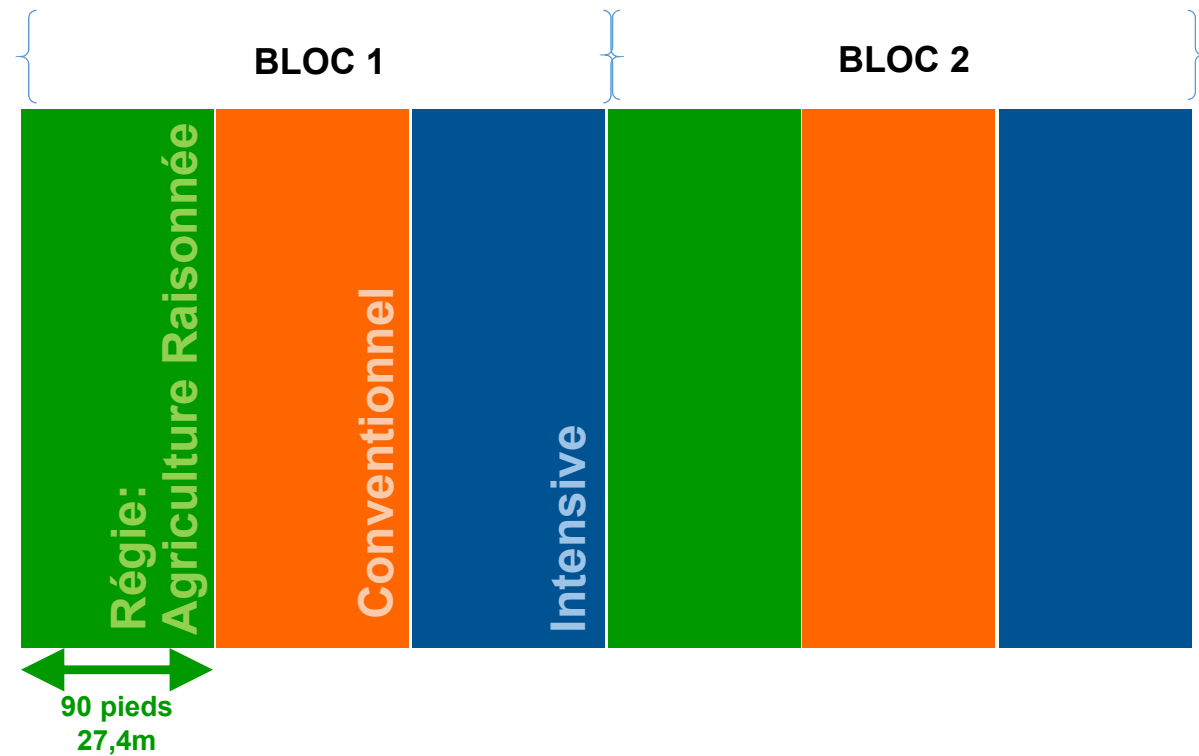
Conventionnel



Organic



Protocol conventionnel system





Treatments by systems

	Organic	Agriculture Raisonnée	Conventional	Intensive
Fertilizer	manure	120 N	120 N	120 N and 150 N
Weed control	aucun	aucun	1 Herbicide	1 or 2 Herbicides
Leaf fungicide				1 Fongicide
Growth regulator				1
Fusarium head blight control			1 fongicide	1 fongicide

A close-up photograph of three golden wheat spikes. The spikes are densely packed with grains and have long, thin awns extending from them. The background is a soft, out-of-focus light color, making the wheat the central focus.



Yields

GPS or Weight



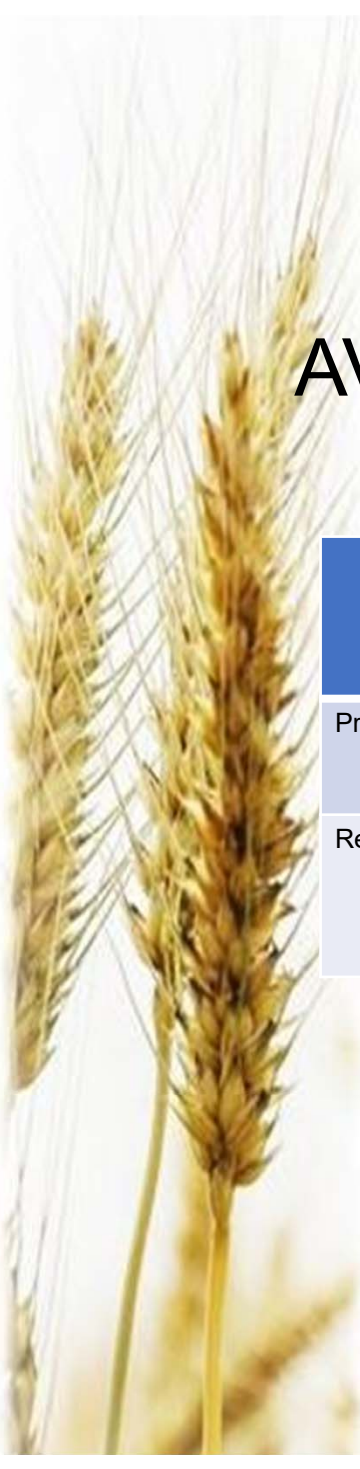
Manual CÉROM)





Ex: OPERATION COSTS

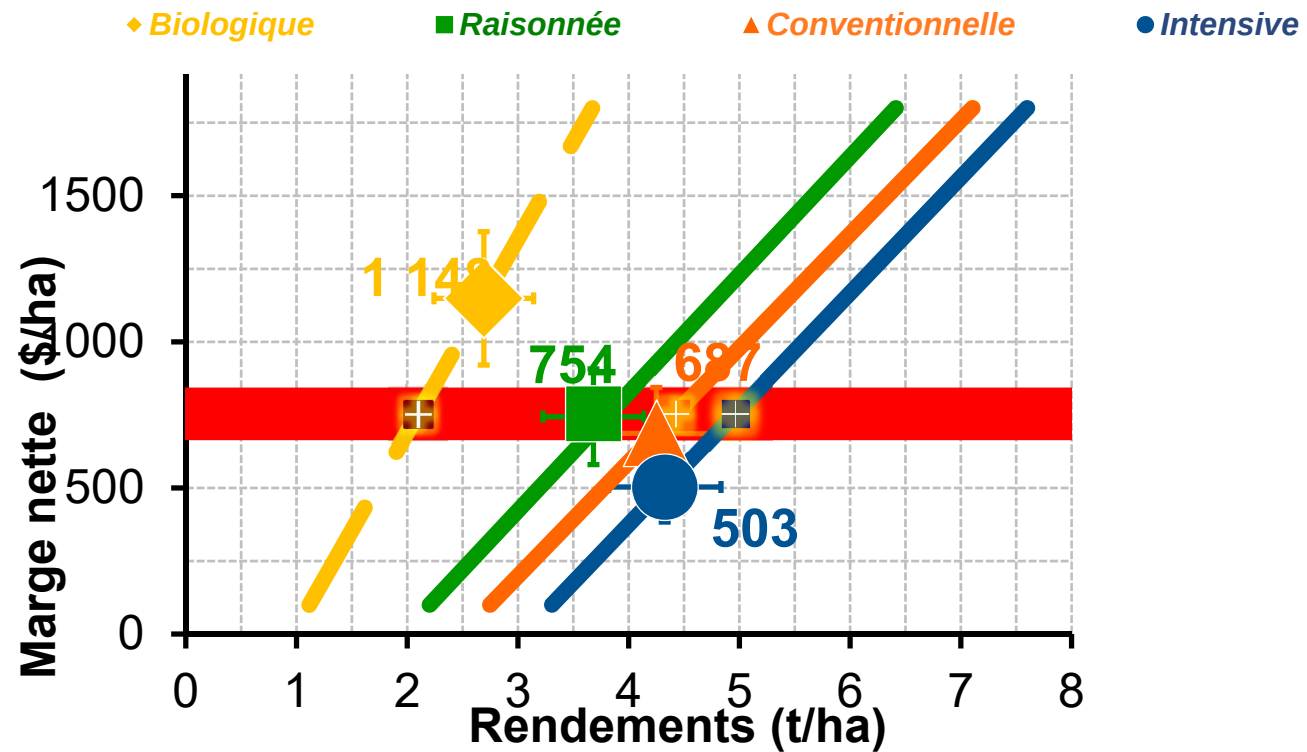
Opérations	\$/ha	Bio	Agriculture Raisonée	Conventionnelle	Intensive
Chisel	50,00 \$				
Labour	100,00 \$	1	1	1	1
Lemken	80,00 \$				
Rouler	13,91 \$				
Vibroculteur	20,00 \$	2	2	2	2
Fauchage	30,00 \$				
Épandage d'engrais granulaire	28,00 \$		1	2	3
Sarclage léger	10,79 \$				
EV dans céréales	10,79 \$				
Semoir semis direct	86,00 \$				
Semoir céréales	41,68 \$	1	1	1	1
Battage	110,00 \$	1	1	1	1
Pressage de la paille	50,00 \$	1	1	1	1
Pulvérisation	25,00 \$	0	0	2	5
	Coûts des Opérations	342 \$	370 \$	448 \$	551 \$



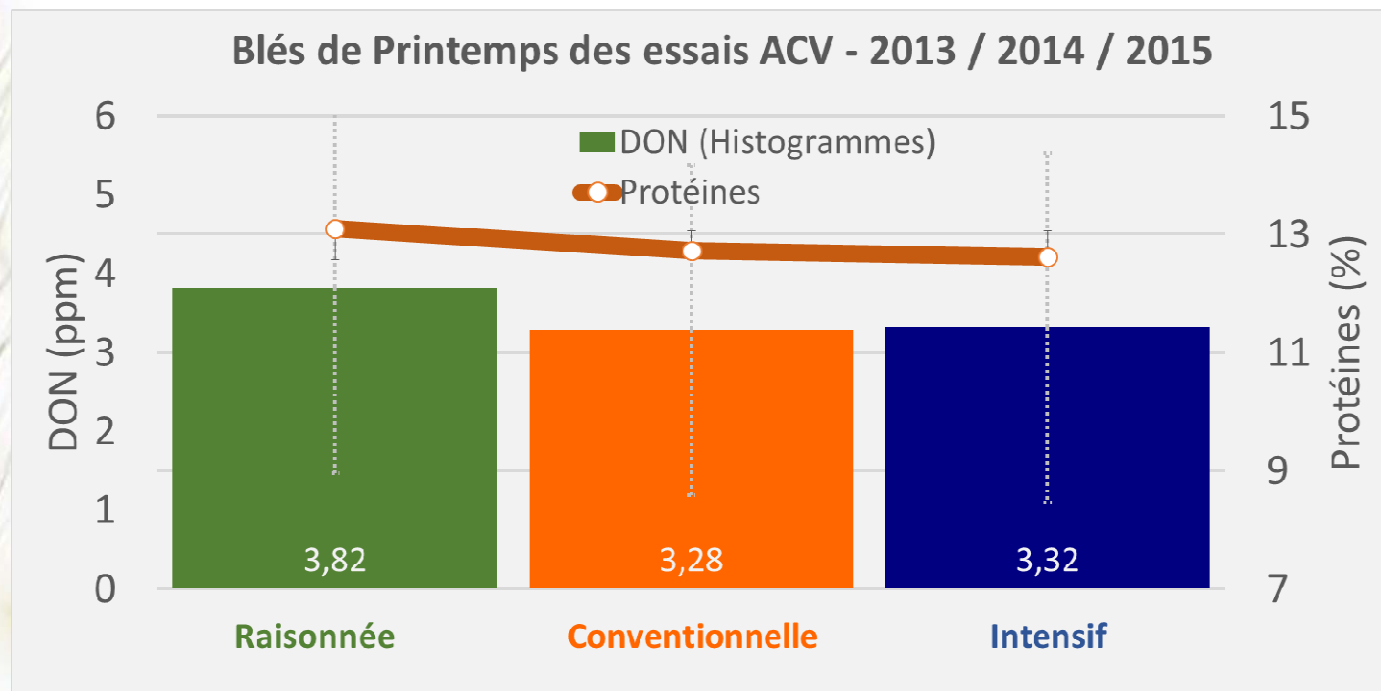
AVERAGE YIELDS FOR SPRING WHEAT

	ORGANIC	AGRICULTURE RAISONNÉE	CONVENTIONAL	INTENSIVE
Prix (\$/t)	525 à 575	265 à 285	220 à 255	220 à 255
Rendement (T/HA)	2,38	3,68	4,25	4,33

Graphic 1. AVERAGE MARGINS FOR SPRING WHEAT (2013-2014-2015)



Quality for spring wheat





Quality organic spring wheat

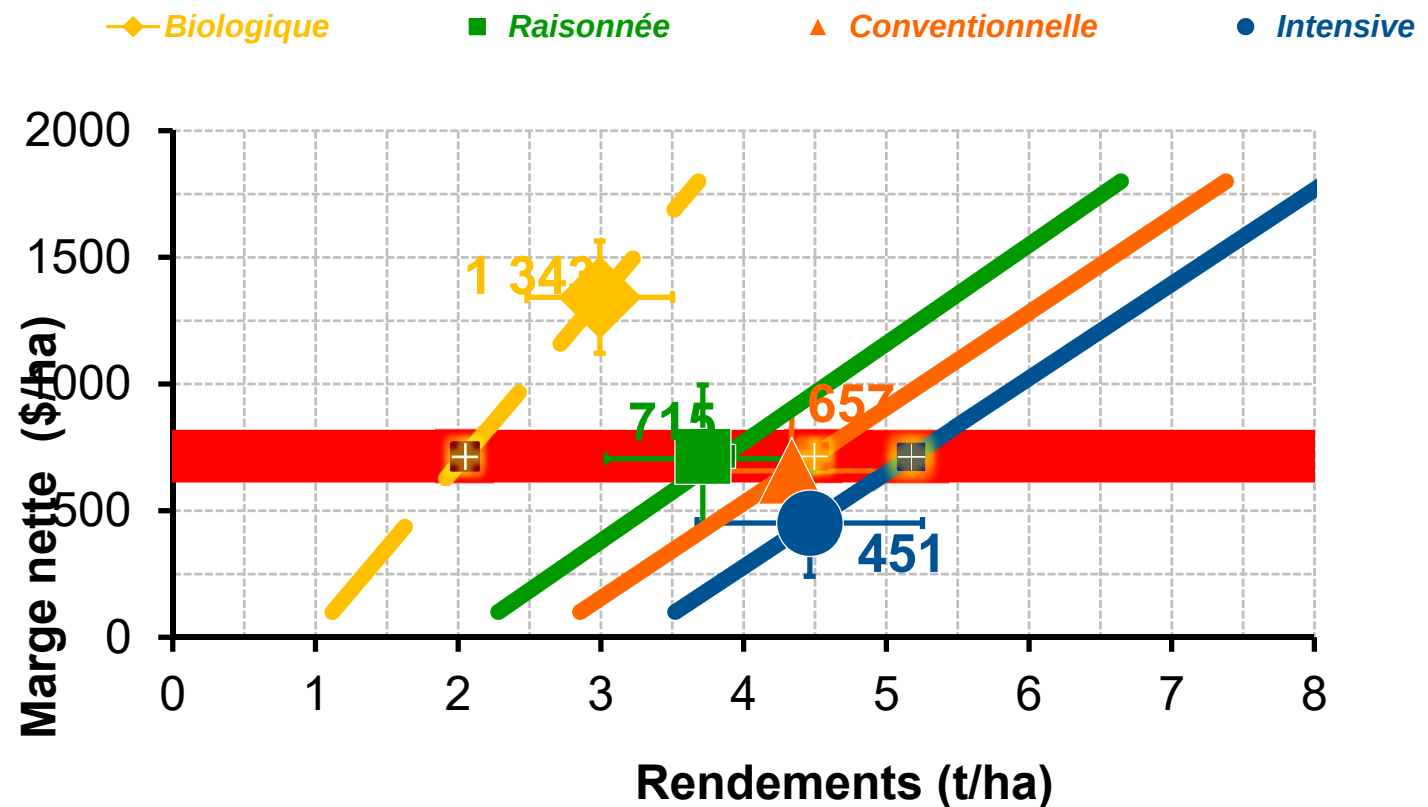
- Average toxins: 1,2 ppm
- Average proteins: 11,9%



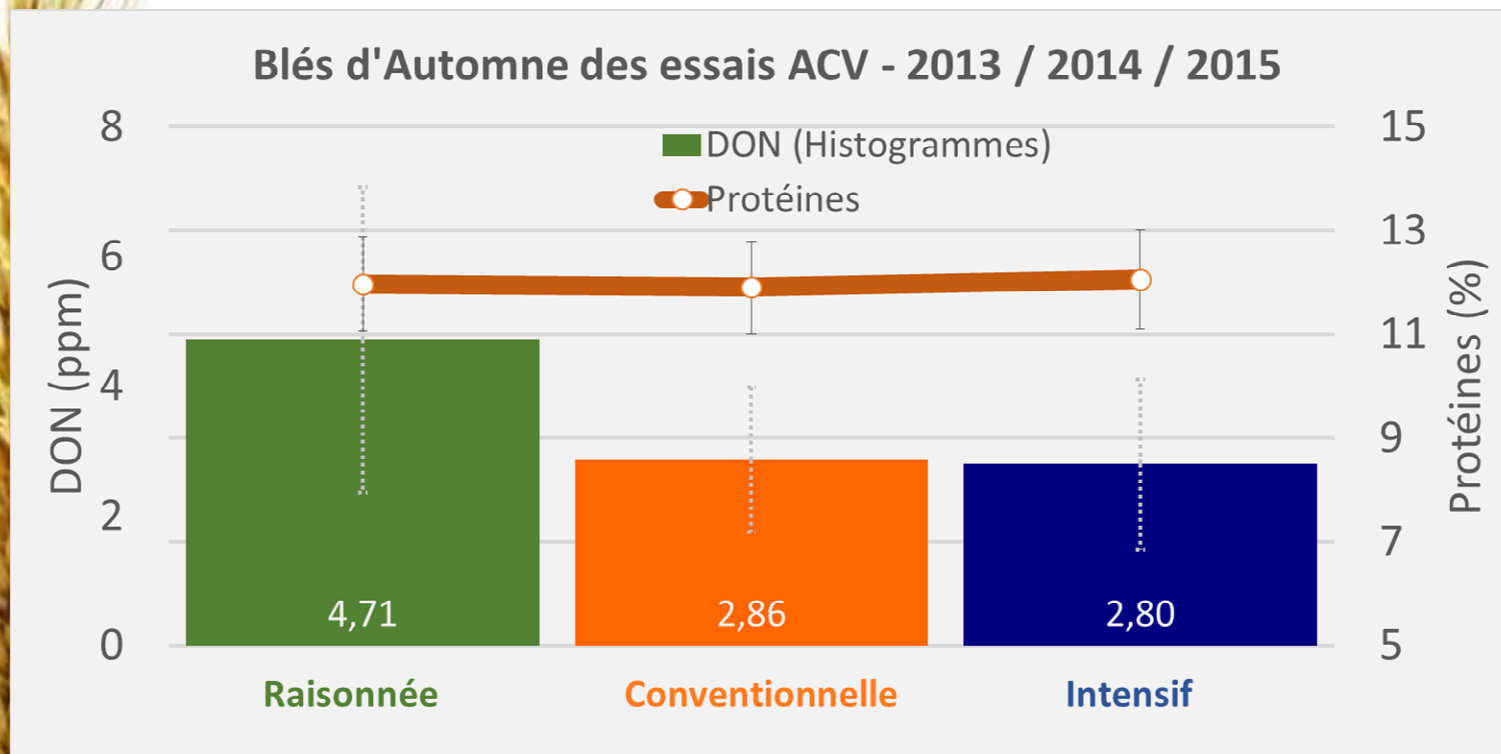
Average yields for winter wheat

	ORGANIC	Agriculture Raisonnée	CONVENTIONAL	INTENSIVE
Prix (\$/t)	525 à 575	265 à 285	220 à 255	220 à 255
Rendement (T/HA)	3,21	3,71	4,34	4,46

Graphic 2. AVERAGE MARGINS FOR WINTER WHEAT (2013-2014-2015)



QUALITY FOR WINTER WHEAT



A vertical strip on the left side of the slide shows a close-up of several wheat spikes. The spikes are golden-brown and have long, thin awns extending from them. The background is a soft, out-of-focus light color.

Quality for organic winter wheat

- Average toxins: 0,4ppm
- Average proteins: 10,5%

GHG for each systems(kg CO₂/t)



2013

Systèm	Soil work	Fertilizer ↓	Spaying	Sedding	Harvest	Transportation	Green manure	Total ↓
Bio	43,8	560	0,0	43,7	17,3	3,8	-39,5	629
AR	24,0	856	3,8	35,1	15,2	3,8		938
Conv.	14,9	781	7,8	30,9	12,6	3,8		852
Intensif	10,7	730	10,7	26,9	10,8	3,8		793

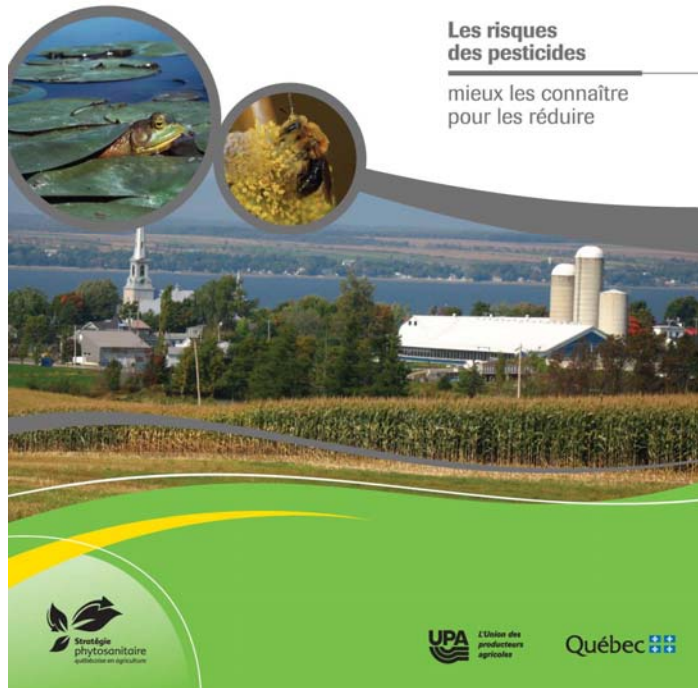
Réf: IRDA - 2013

Environnemental and health impact of pesticides from IRPEQ Irs and IRe



Les risques des pesticides

mieux les connaître
pour les réduire



A2 =+Triage!A8

A B C D E F G H I J K L M N O P

1 récolte 2013

2 374 champs +

3 IRE IRS

4 80 240 Moyenne non pondérée

5 67 250 Moyenne pondérée selon les ha

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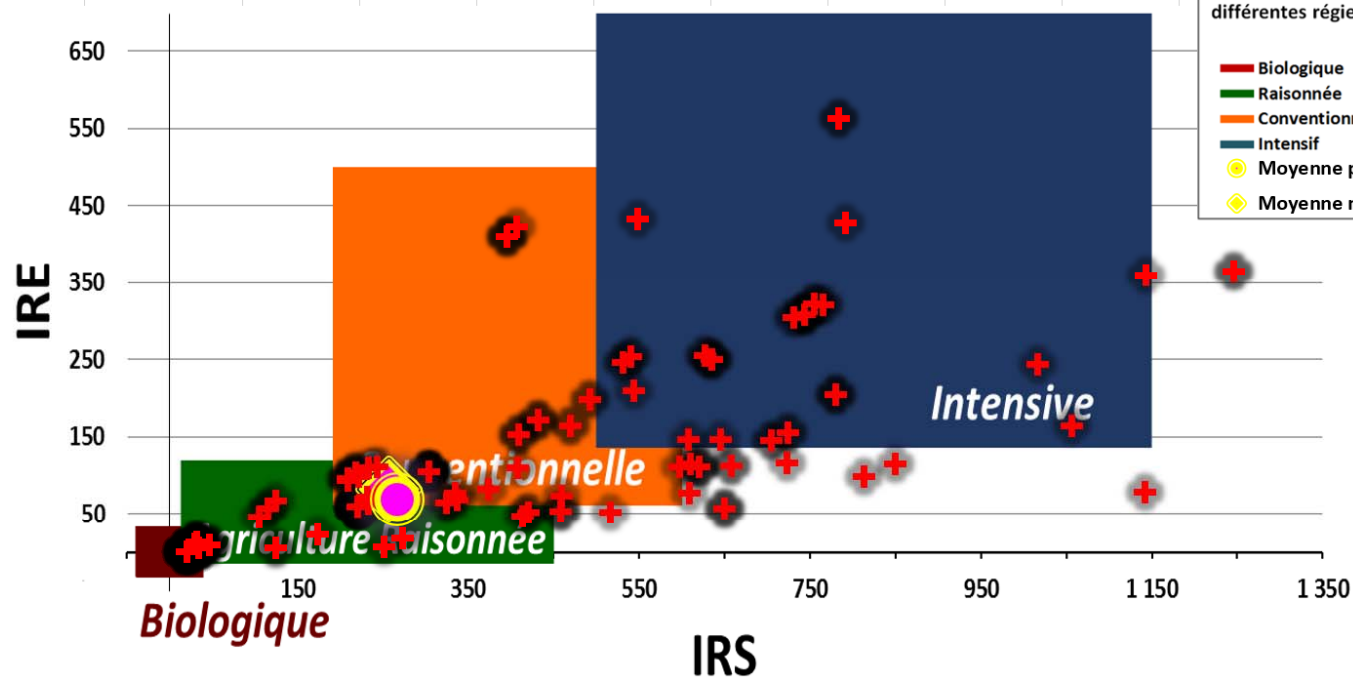
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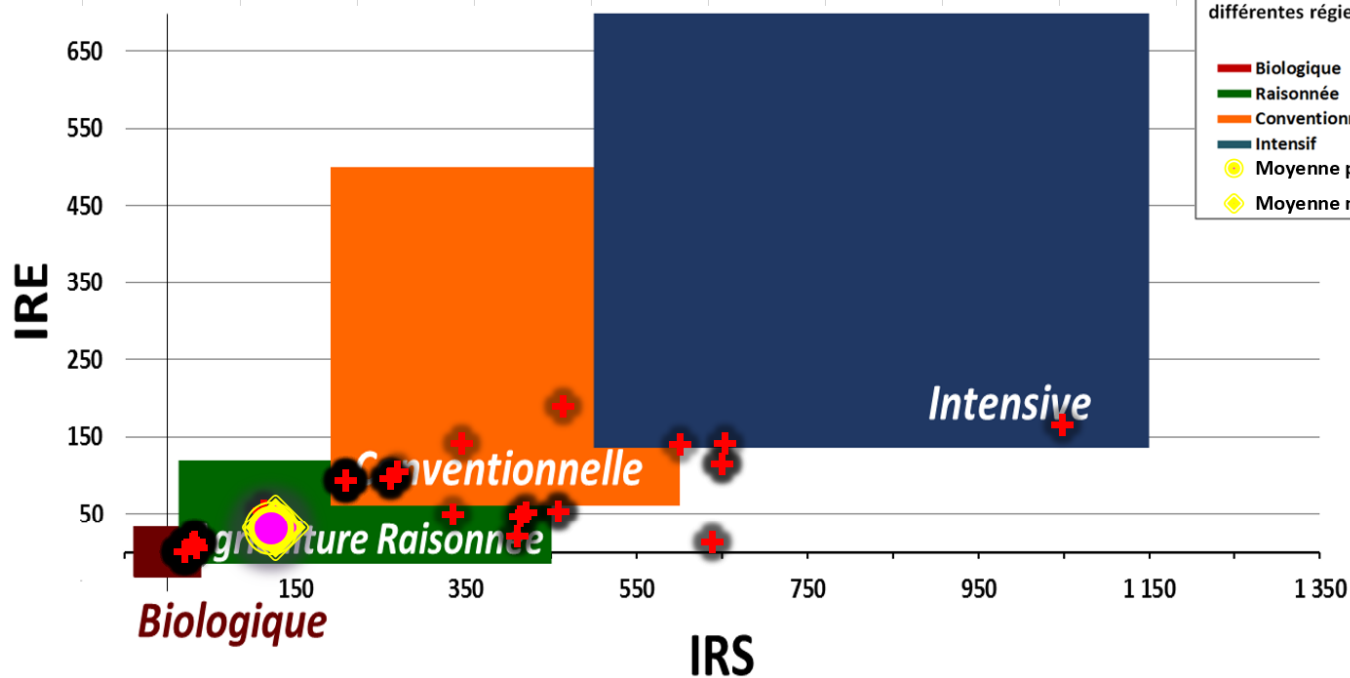
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A close-up photograph of several wheat stalks with golden-brown heads, showing the texture of the grains and the long awns. The background is a soft, out-of-focus light color.

Analysis of the results

The minimum yield for organic equivalent is 2,0 t/ha.

Better margins for winter wheat.

Intensive crop system has the lowest margins.

The difference between Agriculture Raisonnée and conventionnal is small in regards to GHG but organic is the lowest.

A close-up photograph of several wheat stalks, showing the golden-brown grain and the feathery awns. The stalks are positioned vertically on the left side of the slide, partially overlapping the title.

Project impact on the farms

- 4 large scale farms switch to organic systems after the first year.
- The majority of the farms did not continue intensive farming methods.
- The premium and the market for Agriculture Raisonnée is an advantage for wheat producers.
- The project helped to demystify myths about organic production.
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Objection to change

- ☐ Feeling of belonging
- ☐ Way of living
- ☐ Time for activities
- ☐ Resistance to uncertainty
- ☐ Marketing abilities

A close-up photograph of several golden wheat stalks, showing the detailed structure of the grain heads and the fine, wispy awns. The stalks are positioned on the left side of the frame, with the background being a soft, out-of-focus white.

The project objective was not to convert farmers to organic but to put real number under each system.

Thank you!



AGRICULTURE
RAISONNÉE™

*Produire autrement pour
l'environnement.*

HOME

AGRICULTURE RAISONNÉE™

KNOW-HOW

ENVIRONMENTAL FOOTPRINT

R&D

CONTACT US

quality standards required by our bakers.



Sélection variétale



Accompagnement agronomique



Gestion des récoltes



Gestion des approvisionnements



Farines de spécialité

OUR KNOW-HOW

Our knowledge of wheat varieties baking performance is based on the understanding of agronomic impact on quality.

