Synagri Guide

2020
2021

SEEDS

FERTILIZATION

SERVICES

PROTECTION
AND HEALTH

Quality Assurance

synAgri Grow crops differently


synAgri
FORAGE


synAgri
CEREALS
16X32


synAgri
IP SOYBEAN

TABLE OF CONTENT

FORAGE

Introduction to Synagri Forage 6-7
Description of Cultivars 8-15
Forage Mixtures 16-21
Optimal Seeding Rates for Synagri Mixtures and Forage Species 21
Cover crops and Intercrops 22
Riparian Strips 23
Preservatives 24

CEREALS

Introduction to Synagri Cereals 26-27
Oat Varieties 28-29
Wheat Varieties 30-32
Triticale Varieties 32
Barley Varieties 33-37
Comparison Table of Different Synagri Cereal Varieties 38-39
Winter Cereals 40
Cereals Mixtures 41
Forage Mixtures 42
Seeding Rate Chart - Thousand Kernel Weight (TKW) 42-43

SOYBEANS

Introduction to SOYHINOVA IP Soybeans 46-47
SYN110190Z027 (ASAHI) 48
ASUKA Variety 49
KYOTO Variety 50
SYN110373Z002 (KAGAWA) Variety 51
SYN120117Z-03 (SUWA) Variety 52
New 2020-2021 BELCAN SEEDS 54-55

QUALITY ASSURANCE

Synagri Quality Assurance 56-57

FERTILIZATION IN CORN

Introduction of fertilizers 60-61
3 & 5* granular Starter 62-64
3 & 5* liquid Starter 66-68
N-Power Blue 70-73
YaraVera® Amidas 74-80

FERTILIZATION OF FORAGE PLANTS

Starter, Nitrogen fertilization 82
YaraBela® Axan, YaraVera® Amidas & N-POWER BLUE 83

FERTILIZATION IN WHEAT

3 & 5* liquid Starter 84-85
YaraVera® Amidas, YaraBela® Axan 86

FERTILIZATION IN SOYBEAN

3 & 5* granular & liquid Starter 88

PRECISION AG

Introduction to precision AG 90-91
GPS Soil Analyses, pH and lime 92-95

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PREFACE

Ensuring that we provide seeds that meet the needs of producers today and tomorrow is an ongoing task.

Yields, disease resistance, and quality of added-value grain or silage produced in a sustainable environment—all these elements must be taken into consideration by the seeds team when selecting a variety.

In addition, before marketing a new genetic variant, we must take into account the crop management aspect: seeding rates, fertilization, crop protection products and crop health in order to maximize its potential.

We invite you to read our 2020–2021 Seed Guide and, of course, do not hesitate to contact us for more information.

Enjoy your reading!

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FORAGE

At Synagri, we have a range of exclusive forage seeds that are high-performing, persistent and of the best quality. Our alfalfa has exceptional winter hardiness rates. It is also highly resistant to the various diseases that affect alfalfa.

All our forage mixes are adapted to the different needs of growers and to the climatic conditions of our regions, thanks to our trials at the QAIC (Québec Agrifood Innovation Centre) in La Pocatière. Our mixes are manufactured at our authorized seed establishment in Saint- Hyacinthe and then distributed throughout our network.

STELLAR II Alfalfa... one high-efficiency star

NEW

- Mid to early maturity
- Multifoliate at 77%
- Selected for its yield, forage quality, and persistence
- Excellent winter resistance
- Fast growing alfalfa

Fall Dormancy

(1 being the most dormant with less yield)

Winter Hardiness

(1 being the most resistant)

4010BR Alfalfa... likes it damp

- Trifoliate type
- Branch root system adapted to wet soils
- Highly resistant to disease
- Mid to early maturity
- Long-lasting and very productive
- Excellent standability

Fall Dormancy

(1 being the most dormant with less yield)

Winter Hardiness

(1 being the most resistant)

DOMINATOR Alfalfa... the inevitable

- Multifoliate at 60%
- Rapid regrowth
- Fast growing alfalfa
- Unequalled forage quality
- Perfect alfalfa for an intensive management
- Excellent persistence
- Exceptional winter hardiness

Fall Dormancy

(1 being the most dormant with less yield)

Winter Hardiness

(1 being the most resistant)

WL 344HQ Alfalfa... for its winning qualities

NEW

- Multifoliate at 85%
- Early maturing
- Superior digestibility and excellent feed value
- Very efficient in heavy soil
- Excellent forage yield
- Very good winter hardiness
- Highly resistant to root rot (aphanomyces races 1, 2 and 3)

Fall Dormancy

(1 being the most dormant with less yield)

Winter Hardiness

(1 being the most resistant)

BOOST HG Alfalfa... highly digestible

- Non-genetically modified alfalfa with reduction in total lignin
- Improves animal feed intake by 5–10%
- Multifoliate at 73%
- Excellent persistence
- High leaf/stem ratio produces 3–5% more protein
- Allows greater harvest flexibility
- Can generate an additional milk production of 1 kg of milk per cow per day

Fall Dormancy

(1 being the most dormant with less yield)

Winter Hardiness

(1 being the most resistant)

		STELLAR II	4010BR
CHARACTERISTICS	MATURITY	REM[1]	REM
	MULTIFOLIATE	YES	NO
	FALL DORMANCY	4.0[2]	3.6
	WINTER HARDINESS	1.6[3]	1.6
	MANAGEMENT TYPE	Conventional	Conventional
	REGROWTH	Very fast	Average
DISEASE RESISTANCE	YIELD	Very high	Moderately
	ANTHRACNOSE	HR[4]	HR
	BACTERIAL WILT	HR	HR
	SPRING BLACK STEM	HR	HR
	PHYTOPHTHORA ROOT ROT	HR	HR
	VERTICILLIUM WILT	HR	HR

1. MATURITY: EM = early maturing, REM = relatively early maturing
2. FALL DORMANCY: from 1 to 9.1 being the most dormant with less yield
3. WINTER SURVIVAL: from 1 to 6.1 being the most resistant
4. DISEASE RESISTANCE: HR = highly resistant, R = resistant

ALFALFA		
DOMINATOR	WL 344HQ	BOOST HG
EM	EM	REM
YES	YES	YES
5.0	4.4	3.0
1.0	1.7	1.5
Intensive	Conventional	Conventional
Very fast	Fast	Fast
Very high	High	High
HR	HR	HR
R	HR	HR
HR	HR	HR
HR	HR	HR
HR	HR	HR

LESTRIS double cut red clover... unbeatable

- Selected for its excellent winter resistance and forage yield
- Quick to establish
- High ratio leaf/stem
- Mid to early maturity
- A multi-cut (up to 3 cuts a year)
- Exceptional longevity (up to 3-4 years) due to its disease resistance

TIFFANY Timothy... a real little jewel

- A timothy with superior yield
- Rapid and easy establishment in all types of soils
- Semi-late maturity with exceptional recovery
- It has a high leaf/stem ratio
- It makes very appetizing and succulent forage due to its large leaves
- It has a long harvest period due to its maturity

DAWN Timothy... excellent regrowth

- Early maturity
- Excellent regrowth
- Very leafy
- Excellent disease resistance
- Excellent as dry hay for horses
- Excellent mixed with alfalfa, clover or orchardgrass

MONTANA Meadow bromegrass... outstanding potential

- Developed by the University of Montana
- Selected for:
  - its fast germination
  - its spring vigor
  - its fast recovery
  - its high-yield potential
- Has improved forage production capacity, which means better profitability for growers and a superior yield
- Exceptional versatility, therefore, ideal for pasture and forage production

PEAK Smooth Bromegrass... better than candy

- Highest performing in our climatic zones
- Higher yield in hay
- Superior regrowth
- May have a longevity of more than five years
- Its abundant leafiness produces quality hay with high nutritional value, highly appetizing and better digestibility
- It can easily tolerate 3 cuts and a cut of 10 cm in height improves its persistence
- Heads 3-5 days before the earliest Timothy

DIVIDEND VL Orchardgrass... unequalled maturity

- The latest maturing orchardgrass on the market
- This later maturing makes it easier to synchronize with the harvesting of other species
- Good potential yield in combination with alfalfa
- The first signs of maturity show up only in the second week of June
- Its maturity is a great advantage over all other orchardgrasses
- Very slow progression and maturity which lengthen the harvesting period

COWGIRL Tall Fescue... soft and appetizing

- One of the only tall fescues with highly digestible, flexible leaves
- A variety without endophytes that was developed for its high forage quality and resistance to environmental stressors, diseases and pests
- Its many leaves are soft, and the plant is very tall... up to 4 feet tall
- Versatile usage: for grazing, silage, or hay

MERIFEST Meadow Fescue... very good yield

- Fast growth in the spring
- Very good persistence
- Very good yields
- Very good winter hardness
- Resistant to diseases
- Usage for forage or pasture
- Suitable for mixtures

MELQUATRO Annual Ryegrass... very high yield

- Italian tetraploid type, does not mature the year it is seeded
- Very high yield
- Excellent spring vigor
- Superior growth
- Produces a high-quality forage
- Excellent intercropping choice

ELUNARIA Annual Ryegrass... try it, and you will love it

- A tetraploid annual ryegrass of the westerwold type, does mature the year it is seeded
- A green tall stature plant
- Very good spring vigor
- Mid-late maturity
- Excellent choice if you want to do some frost seeding or spring reseeding
- Provide full-season production and a good regrowth capacity

FEEDER Perennial Ryegrass... very nourishing

- Diploid perennial
- High yield
- Average maturity
- Rapid regrowth
- Was built for hay and grazing multi-cut systems
- Very rapid growth and establishment
- A very nourishing perennial ryegrass which added a better digestibility to the mix

BECVA Festulolium... yield and quality

- Ryegrass tetraploid type
- Combines the yield and forage quality of Italian ryegrass and the persistence of tall fescue
- High-sugar content and for all types of pH (5 to 8)
- Requires well-drained and fertile soils
- Very good regrowth: 2nd and 3rd cut

HYKOR Festulolium... yield and persistence

- A cross between Italian ryegrass and tall fescue
- Compared to meadow fescue and tall fescue, HYKOR festulolium offers better nutritional value – measured by higher sugar and energy content
- High-yield potential
- Excellent persistence because of its deep root system
- Very good resistance to drought

PRO-ENERGY Mixture

Recommended seeding rate: 21 kg/ha

WL 344HQ	Alfalfa	80%
TIFFANY	Timothy	20%

- The predominance of the highly nutritional alfalfa improves the Forage mixture quality
- Reduce to 15 kg/ha if combined with one of these Mixes (see p.28): EXTRAGRASS +, TWO-BROMEGRASS +, ME 903 or BROM-FEST

MAXI-MILK Mixture

Recommended seeding rate: 21 kg/ha

DOMINATOR	Alfalfa	70%
DAWN	Timothy	30%

- For dairy producers who follow an intensive management program
- Reduce to 15 kg/ha if combined with one of these Mixes (see p.28): EXTRAGRASS +, TWO-BROMEGRASS +, ME 903 or BROM-FEST

DAIRY Mixture

Recommended seeding rate: 21 kg/ha

WL 344HQ	Alfalfa	60%
TIFFANY	Timothy	40%

- The predominance of the highly nutritional alfalfa improves the quantity of protein and energy per hectare
- A balanced and performing mixture
- Reduce to 15 kg/ha if combined with one of these Mixes (see p.28): EXTRAGRASS +, TWO-BROMEGRASS +, ME 903 or BROM-FEST

VARI-SOIL Mixture

Recommended seeding rate: 21 kg/ha

4010BR	Alfalfa	40%
STELLAR II	Alfalfa	20%
TIFFANY	Timothy	40%

- Does well in various, sloping or rocky lands
- Reduce to 15 kg/ha if combined with one of these Mixes (see p.28): EXTRAGRASS +, TWO-BROMEGRASS +, ME 903 or BROM-FEST

PERFO-GAIN Mixture

Recommended seeding rate: 21 kg/ha

DOMINATOR	Alfalfa	80%
DAWN	Timothy	17%
DIVIDEND VL	Orchardgrass	3%

- Mixed on an alfalfa base containing orchardgrass to increase the regrowth of your grasses and the palatability of hay or silage. The orchardgrass is coated so that it can be seeded using a small seed box
- Reduce to 15 kg/ha if combined with one of these Mixes (see p.28): EXTRAGRASS +, TWO-BROMEGRASS +, ME 903 or BROM-FEST

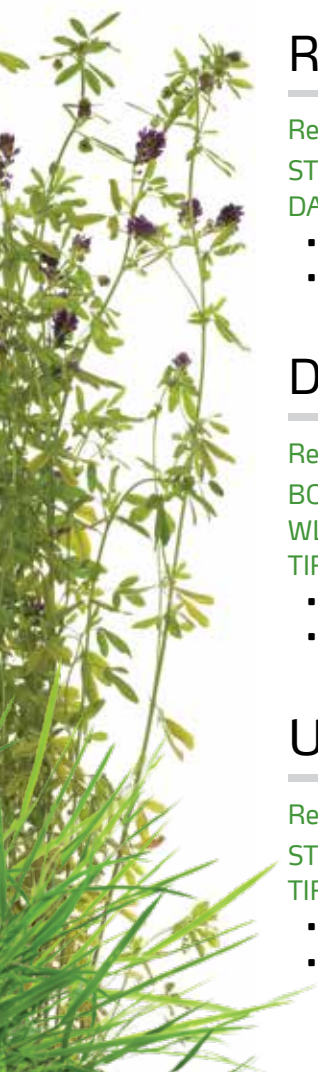
LACTO-PLUS Mixture

NEW FORMULA

Recommended seeding rate: 21 kg/ha

STELLAR II	Alfalfa	70%
TIFFANY	Timothy	30%

- For a higher digestibility forage
- Reduce to 15 kg/ha if combined with one of these Mixes (see p.28): EXTRAGRASS +, TWO-BROMEGRASS +, ME 903 or BROM-FEST



RUSTIK Mixture

Recommended seeding rate: 21 kg/ha

STELLAR II	Alfalfa	60%
DAWN	Timothy	40%

- The predominance of the winter hardy alfalfa brings superior longevity to this mixture
- Reduce to 15 kg/ha if combined with one of these Mixes (see p.28): EXTRAGRASS +, TWO-BROMEGRASS +, ME 903 or BROM-FEST

DUALFALFA Mixture

NEW FORMULA

Recommended seeding rate: 21 kg/ha

BOOST HG	Alfalfa	25%
WL 344HQ	Alfalfa	25%
TIFFANY	Timothy	50%

- The addition of two alfalfa cultivars combines quality, longevity and yield
- Reduce to 15 kg/ha if combined with one of these Mixes (see p.28): EXTRAGRASS +, TWO-BROMEGRASS +, ME 903 or BROM-FEST

ULTRA-HAY Mixture

Recommended seeding rate: 21 kg/ha

STELLAR II	Alfalfa	20%
TIFFANY	Timothy	80%

- Make an excellent hay for horses and combined with other grasses
- Requires an early spring nitrogen application

HQ FORCE Mixture

Recommended seeding rate: 26 kg/ha

Alfalfa and Timothy: 17 kg/ha bromegrass and fescue (separately): 9 kg/ha

WL 344HQ	Alfalfa	50%
TIFFANY	Timothy	18%
MONTANA	Meadow bromegrass	20%
COWGIRL	Tall Fescue	12%

- The predominance of the highly nutritional alfalfa improves the quantity of protein and energy per hectare
- Combines the grass seeds for ease of management and for palatability

BIO-SEM Mixture

Recommended seeding rate: 21 kg/ha

STELLAR II	Alfalfa	40%
LESTRIS	Red Clover	15%
TIFFANY	Timothy	45%

- The contribution of red clover ensures better establishment of alfalfa in difficult soil conditions
- Reduce to 15 kg/ha if combined with one of these Mixes (see p.28): EXTRAGRASS +, TWO-BROMEGRASS +, ME 903 or BROM-FEST

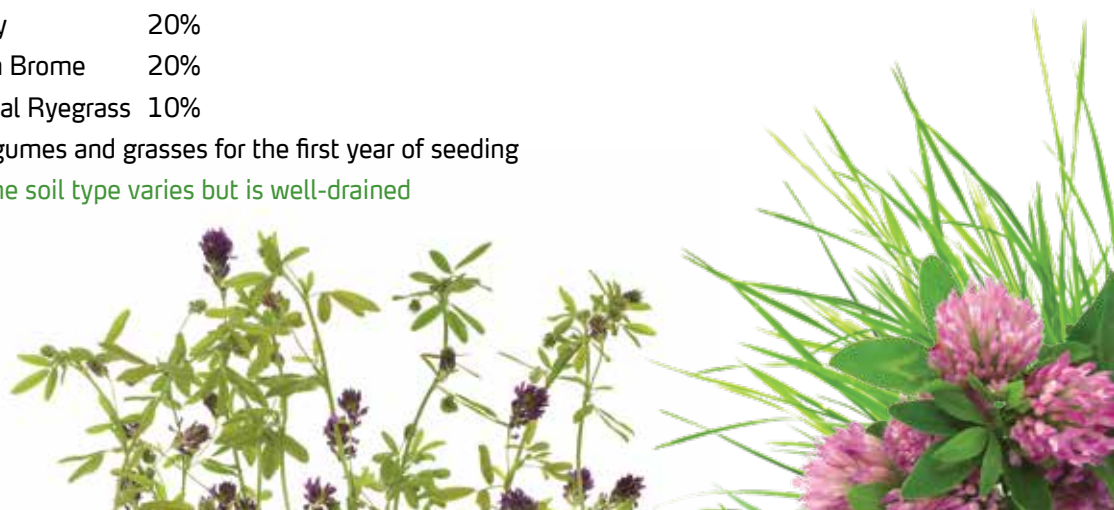
PERFO-2000 Mixture

Recommended seeding rate: 28 kg/ha

Alfalfa, Clovers and Timothy: 19.5 kg/ha Bromegrass and ryegrass (separately): 8.5 kg/ha

STELLAR II	Alfalfa	35%
LESTRIS	Red Clover	10%
GLACIER LADINO	White Clover	5%
DAWN	Timothy	20%
PEAK	Smooth Brome	20%
FEEDER	Perennial Ryegrass	10%

- A perfect balance of legumes and grasses for the first year of seeding
- Good for fields where the soil type varies but is well-drained



BIO-MAX Mixture

Recommended seeding rate: 21 kg/ha

LESTRIS	Red Clover	40%
TIFFANY	Timothy	60%

- The timothy performs better the second year where it accelerates fast drying in the field
- Adapts to all types of soil

TANDEM Mixture

Recommended seeding rate: 21 kg/ha

LESTRIS	Red Clover	50%
TIFFANY	Timothy	50%

- Highly productive and easy to establish
- Reduce to 15 kg/ha if combined with one of these Mixes (see p.28): EXTRAGRASS +, TWO-BROMEGRASS +, ME 903 or BROM-FEST

VARYLAND Mixture

Recommended seeding rate: 21 kg/ha

STELLAR II	Alfalfa	40%
LEO	Birdsfoot Trefoil	25%
TIFFANY	Timothy	35%

- Recommended for rolling landscape with variable drainage
- Combination of alfalfa and birdsfoot trefoil results in longer productivity

PRAIRIAL Mixture

Recommended seeding rate: 21 kg/ha

LESTRIS	Red Clover	40%
GLACIER LADINO	White Clover	5%
TIFFANY	Timothy	55%

- An ideal combination for hay or pasture
- Easy to seed and adaptable to many types of soil

SUPRA-CUT Mixture

NEW FORMULA

Recommended seeding rate with a cover crop: 10 kg/ha and 26 kg/ha alone

FEEDER	Perennial Ryegrass	34%
COWGIRL	Tall fescue	33%
DIVIDEND VL	Orchardgrass	33%

- Best suited for an intensive management
- For an exceptional yield cut after cut

EXTRAGRASS + Mixture

Recommended seeding rate with a cover crop: 10 kg/ha and 32 kg/ha alone

PEAK	Smooth Bromegrass	15%
MONTANA	Meadow Bromegrass	35%
COWGIRL	Tall Fescue	35%
ELUNARIA	Annual ryegrass	15%

- A mid-season grass mixture which can be grown with a mixture of alfalfa or red clover
- Reduces to 15 kg/ha the seeding rate of alfalfa and clover by 15% when combined with EXTRAGRASS +

TWO-BROMEGRASS + Mixture

Recommended seeding rate with a cover crop: 10 kg/ha and 20 kg/ha alone

PEAK	Smooth Bromegrass	40%
MONTANA	Meadow Bromegrass	60%

- A mixture of a two-brome variety combining yield, quality and palatability
- Smooth bromegrass is erected and meadow bromegrass is leafy with abundant growth
- Reduces to 15 kg/ha the seeding of alfalfa and clover by 15% when combined with TWO-BROMEGRASS +

ME 903 Mixture

Recommended seeding rate with a cover crop: 10 kg/ha and 28 kg/ha alone

PEAK	Smooth Bromegrass	35%
MONTANA	Meadow Bromegrass	35%
COWGIRL	Tall Fescue	30%

- A mid-season grass mixture which can be grown with a mixture of alfalfa or red clover
- Reduces to 15 kg/ha the seeding rate of alfalfa and clover by 15% when combined with ME 903

BROM-FEST Mixture

Recommended seeding rate with a cover crop: 10 kg/ha and 28 kg/ha alone

PEAK	Smooth Bromegrass	35%
MONTANA	Meadow Bromegrass	35%
HYKOR	Festulolium	15%
BECVA	Festulolium	15%

- The presence of festulolium enhances the palatability of the mixture
- A mid-season grass mixture which can be grown with a mixture of alfalfa or red clover
- Reduces to 15 kg/ha the seeding rate of alfalfa and clover by 15% when combined with BROM-FEST

PASTUR-2000 Mixture

Recommended seeding rate: 26 kg/ha

Clovers and Timothy: 13 kg/ha Bromegrass and ryegrass (separately): 13 kg/ha

LESTRIS	Red Clover	10%
GLACIER LADINO	White Clover	20%
DAWN	Timothy	20%
MONTANA	Meadow Bromegrass	35%
MERIFEST	Meadow fescue	15%

- A very productive and general-purpose pasture mixture for intensive management
- Very palatable for all types of livestock

SEEDING RATES

	Number of seeds	Pure stand		in association	
	kg	kg/ha	lb/acre	kg/ha	lb/acre
EXTRAGRASS +		32	28	10	9
TWO-BROMEGRASS +		20	18	10	9
ME 903		28	25	10	9
BROM-FEST		28	25	10	9
INTERCROP MIX NO. 1		18	16		
INTERCROP MIX NO. 2		17	15		
REED CANARYGRASS	1 200 000	15	13	8	7
MEADOW BROMEGRASS	175 000	13	11	7	6
SMOOTH BROMEGRASS	300 000	18	16	10	9
ORCHARDGRASS	1 450 000	11	10	5	4
FESTULOLIUM	250 000	25	22	10	9
MEADOW FESCUE	500 000	16	14	8	7
TALL FESCUE	500 000	16	14	8	7
TIMOTHY	2 500 000	10	9	7	6
SUDANGRASS	106 000	35	31	15	13
BIRDSFOOT TREFOIL	815 000	10	9	7	6
ALFALFA	500 000	13	11	9	8
MIXTURE DITCHES AND SLOPES		50	45		
JAPANESE MILLET	340 000	25	22	20	18
PEARL MILLET	155 000	15	13	10	8
MUSTARD	220 000	12	10		
SWICTHGRASS	570 000	10	9		
KENTUCKY BLUEGRASS	4 800 000	150	133		
PHACELIA	517 000	12	10		
4010 FORAGE PEA	5 000	100	90		
FORAGE RADISH	88 000	15	13		
OILSEED RADISH	88 000	15	13		
ANNUAL OR PERENNIAL DIPLOID RYEGRASS	500 000	20	18	4	3
ANNUAL OR PERENNIAL TRIPLOID RYEGRASS	250 000	25	22	4	3
INTERCROP ANNUAL RYEGRASS		15	13		
BUCKWHEAT	33 000	90	80		
FALL RYE		132	118		
SORGHUM OR BMR SORGHUM	75 000	35	31	25	22
WHITE CLOVER (Ladino, Dutch or Huia)	1 750 000	4	3	2	2
BERSEEM CLOVER	360 000	14	12	5	4
CRIMSON CLOVER	330 000	20	18	5	4
DOUBLE CUT RED CLOVER	600 000	10	9	7	6
COMMON VETCH	15 500	40	36		
VESCE VELUE	35 500	25	22		

COVER CROPS AND INTERCROPS

Why use cover crops?

- To colonize soil with roots to improve its health and productivity
- To protect soil against erosion
- To allow fertilizer recovery after manure spreading
- To provide future crops with nitrogen supply from legumes
- To enrich the soil with biomass and organic matter
- To improve the soil structure with root systems that help soil decompaction
- To control weeds by competing with them
- To break the cycle of diseases and insects with the introduction of a new crop

Our mixes:

SYN-CO 90 (90% forage pea 4010 - 10% forage radish)

SYN-CO 40 (40% forage pea 4010 - 50% fall rye- 10% forage radish)

Legend:
E = EXCELLENT
VG = VERY GOOD
G = GOOD
A = AVERAGE
P = POOR

	Annual ryegrass	Fall rye	Radish	Mustard	White clover	Red clover	Common vetch	Hairy vetch	4010 forage pea	Phacelia	Buckwheat
Seeding rate (kg/ha)	4-25	66-132	8-15	5-12	2-4	10	11-40	11-25	50-100	12	80-90
Dry matter (t/ha/yr)	2.2-10	3.4-11	4.5-8	3.4-10	2.2-7	2.2-5.6	4.5-9	2.5-5.6	4.5-5.6	1.2-4.5	2.2-4.5
Nitrogen fixers					E	VG	E	E	E		
Nitrogen recovery	VG	E	E	VG	A	G	G	A	A		P
Soil builder	VG	E	VG	VG	B	VG	E	VG	G		G
Erosion control	VG	E	VG	VG	VG	G	G	G	VG		A
Weed suppression	VG	E	E	VG	VG	VG	E	G	G	A	E
Allelopathic effect	B	E	VG	VG	G	G	G	G	A	P	VG
Quicker growing	VG	E	VG	VG	A	A	VG		VG	A	E
Flood tolerant	VG	G	A	A	VG	G	G	A	A		A
Drought tolerant	A	E	A	VG	G	A	VG	G	G		P
Decreasing compaction	G	A	E	A	A	VG	VG	G	M	P	P

Note: The seeding rate varies depending on whether sown in combination or in pure

Why intercrops?

- 100% erosion
- 98% nitrogen loss
- 86% phosphorus loss
- 78% runoff

Intercrop mix no. 1

Seeding rate 18 kg/ha

Annual Ryegrass	MELQUATRO (Italian)	44%
Vetch	COMMON	56%

Intercrop mix no. 2

Seeding rate 17 kg/ha

Annual Ryegrass	MELQUATRO (Italian)	24%
Forage Radish	DAIKON	18%
Annual Clover	INCARNAT	58%

Single crop seeds

Seeding rate 15 kg/ha

Annual Ryegrass MELQUATRO (Italian) or
Annual Ryegrass COMMON #1 (DYNA-GAIN Brand)

- MELQUATRO ryegrass does not mature the year it is seeded (biannual, hence will not become a weed). It improves the soil structure. It is good to support the bearing capacity of the soil. It tolerates flooding.
- Vetch is a source of nitrogen for the next crop. It tolerates dryness. It improves the structure of the soil. It helps keep weeds under control. It promotes soil biodiversity. The common vetch will not survive the winter, unlike the hairy vetch, which can become a weed in the spring.
- Radish promotes water filtration (aerates the soil). It stores nutrients. It helps control weeds.
- Crimson clover is an annual. It is a source of nitrogen for the next crop. It improves the structure of the soil. It is also good to support the bearing capacity of the soil.

RIPARIAN STRIPS

A riparian strip is much more than a simple assemblage of herbaceous and woody plants. It generates many ecological and economic services.

In fact, it controls erosion, filters pollution, and is a powerful ecosystem that welcomes fauna and flora. It also serves as a visual cue in the landscape and helps reduce costs.

Undertaking the restoration of a riparian strip is not a trivial gesture. Indeed, it is one of the most important actions to ensure the water quality of lakes and streams.

Here are 2 mixtures serving for this purpose:

DITCHES-BANK mix

Seeding rate 50kg/ha

Creeping red fescue Com.#1	40%
Meadow fescue Com.#1	20%
Annual ryegrass Com.#1	15%
Perennial ryegrass Com.#1	10%
Alsike clover Com.#1	15%

RIPARIAN STRIP mix no.1

Seeding rate 40kg/ha

Creeping red fescue Com.#1	30%
Kentucky bluegrass Com.#1	10%
Timothy Com.#1	20%
Alsike clover Com.#1	10%
Annual ryegrass Com.#1	10%
Perennial ryegrass Com.#1	20%

PROTECT-FOIN PLUS... for dry hay or silage

Protect-Foin Plus is a 70% buffered organic acid (56% propionic and 16% acetic). It is a liquid mold inhibitor for legume and grass hay with high moisture content. It is non-corrosive. It helps reduce heat build-up and mold in pressed hay between 20% and 35% humidity when used as directed.

Recommendations			
% moisture	Small Bales	% moisture	Large Square or Round Bales
16 - 19	3 liters/TM	15 – 18	3 liters/TM
20 – 24	5 liters/TM	19 – 22	6 liters/TM
25 – 29	10 liters/TM		
The density is 1.065 kg per liter			

Seal the silage silo (last 15-20 MT) by adding PROTECT-FOIN (5 L/ton) on the top of the silo. Protect-Foin Plus is available in 20, 200 and 1000 kg formats.

BIO-PLUS... for silage

200 g water soluble or 20 kg granular product (treats 40 MT of corn silage or 20 MT of grass silage). It's a unique and natural non corrosive product that combines 3 lactic bacteria and 3 enzymes.

A HOMOFERMENTATIVE inoculant

- Produces only lactic acid
- Lowers pH very quickly by preserving all sugars and producing very little heat
- Minimizes the loss of dry materials
- Improves the digestion of forage

MOLD-ZAP... for total mixed rations (TMRs) and silage

This is a unique mix of propionic and other buffered organic acids that blend to form a powerful mold inhibitor in TMRs and preserved foods.

The MOLD-ZAP:

- Reduces the heat caused by mold in TMRs, in coated feed and in silage exposed to air
- Improves savour thanks to its natural lemony taste
- Improves the quality of ingested feed
- Reduces waste in animal feed
- Helps reduce losses in animal production

APPLICATION RATE

1 kg/ton of finished feed (maximum 2 kg/ton in a TMR)

To seal the silo (the last 15 to 20 tons) add MOLD-ZAP (3 kg/ton)

FCC Input Financing

With up to 18 months to pay, it's the simple and flexible way to free up your cash flow. Get pre-approved and take the guesswork out of managing your crop input and fuel purchases.

fcc.ca/Inputs

18-MONTH CROP CYCLE

Mylène

Mylène Desautels, agr.

Cereals expert / Seeds analyst

mylene.desautels@synagri.ca

CEREALS

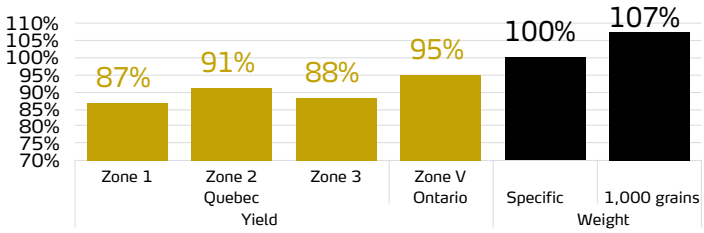
At Synagri, we are committed to offering varieties with different characteristics in order to meet all the needs of our growers . Whether it is grain or straw productivity, high protein content, or good disease tolerance, we have what you are looking for!

The results presented in the various tables come from trials conducted by the Réseau des Grandes Cultures du Québec (RGCQ), the Ontario Cereals Crop Committee (OCCC), research projects with qualified researchers or plot trials conducted by our Synagri R&D team.

Our pride lies in the diversity and quality of our products .

Vitality... for human consumption

- Oat groats
- Large grains and high % of almonds
- Good medium straw



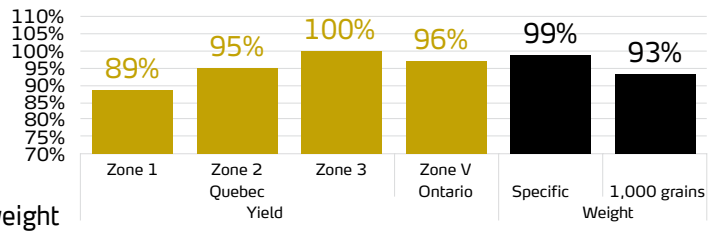
Recommended seeding rates for a 1000 seed weight of 42.6 g:

- Conventional: 149 to 150 kg/ha for an average seeding density of 350 seeds/m^2
- High performance: 170 to 175 kg/ha for an average seeding density of 400 seeds/m^2

Features Index (1) having the best performance
Data based on the average of oat cultivars recommended by the CRCQ and OCCC 2017-2019

Hidalgo... performs in cool areas

- Medium height
- Low % of hulls
- Used in our cereal



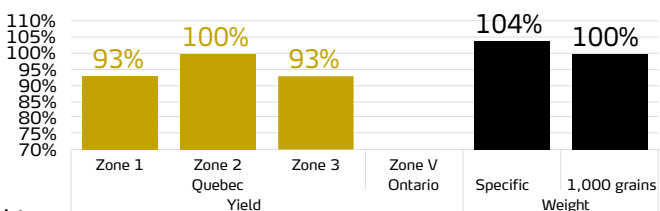
Recommended seeding rates for a 1000 seed weight of 37.1 g:

- Conventional: 130 to 135 kg/ha for an average seeding density of 350 seeds/m^2
- High performance: 150 to 155 kg/ha for an average seeding density of 400 seeds/m^2

Features Index (1) having the best performance
Data based on the average of oats cultivars recommended by the CRCQ and OCCC 2017-2019

Synextra... the protein pro

- Notable for its superior thousand kernel weight,, its large grain, its long straw
- A superior protein level



Recommended seeding rates for a 1000 seed weight of 39.7 g:

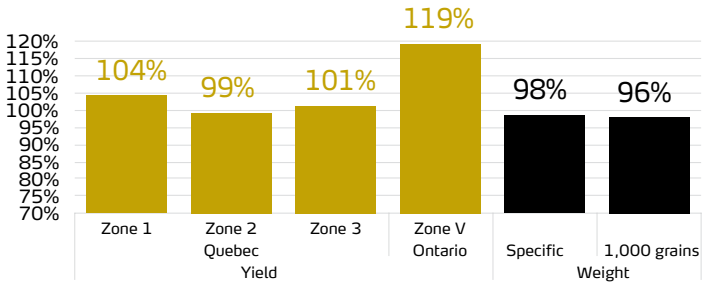
- Conventional: 140 to 145 kg/ha for an average seeding density of 350 seeds/m^2
- High performance: 160 to 165 kg/ha for an average seeding density of 400 seeds/m^2

Features Index (1) having the best performance
Based on the average of oats cultivars recommended by the CRCQ and OCCC 2017-2019

AAC Banner... for oatmeal

NEW

- Accepted by Quaker
- High level of B-glucan
- White almonds
- Resistant straw
- High yield potential
- Good disease tolerance



Recommended seeding rates for a 1000 seed weight of 38.1 g:

- Conventional: 133 to 138 kg/ha for an average seeding density of 350 seeds/m^2
- High performance: 152 to 158 kg/ha for an average seeding density of 400 seeds/m^2

Features Index (1) having the best performance
Data based on the average of oat cultivars recommended by the CRCQ and OCCC 2017-2019

ORGANIC PRODUCTS

You are aiming for the ORGANIC market!

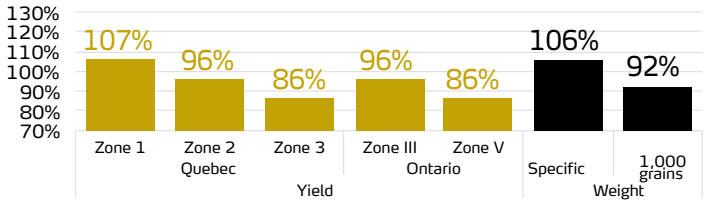
We offer seeds and products adapted to your needs.
Fodder, cereals, corn, soybeans, fertilizers, as well as crop protection and health products.

Visit our website or contact your Synagri representative
www.synagri.ca

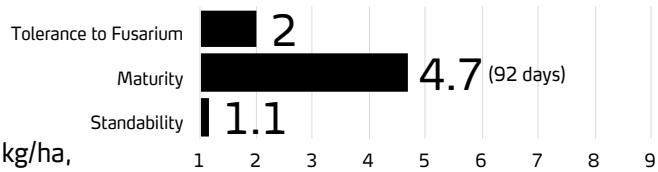
We offer four bread wheats, as well as a feed wheat. Each one has specific unique characteristics.

AAC Synox... superior quality

- Mid maturity between Major and Megantic
- Yield relatively superior to the average in crop zones 1 and 2 in Qc
- Outstanding bread-making quality
- Good tolerance to Fusarium
- Accepted by Ontario Wheat Board (OWB)



Crop management positioning
(according to 2017, 2018 and 2019 plot results, Synagri Saint-Hyacinthe and Nicolet R&D sites)



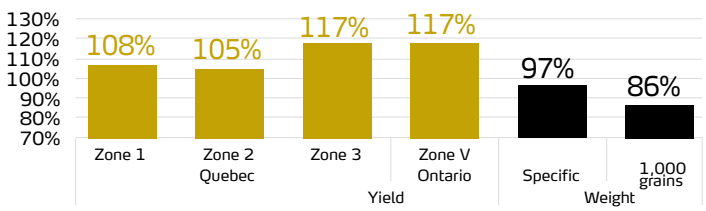
Features Index (1) having the best performance
Based on the average of feed wheat cultivars recommended by the CRCQ 2017-2019

Recommendations:

- Seeding rates 450 to 500 seeds/m² (170 to 190 kg/ha, for a 1000 seed weight of 35.9 g)
  * Always use the 1000 seed weight, add 10% for untreated seeds.
- Nitrogen dose: 120 to 140 kg/ha
- Intensive management: 150 kg/ha
- Fungicide: T1: If needed
  T2: Recommended
  T3: Recommended
- Growth regulator: recommended, especially in conditions where there is a risk of lodging.

RGT Presidio... guaranteed yield

- A higher yielding wheat in all growing areas of Quebec
- Exceptional standability
- Suitable for high-performance management with phased fertilization and fungicides
- Responds well to average seeding rates and high nitrogen rates



Crop management positioning
(according to 2017, 2018 and 2019 plot results, Synagri Saint-Hyacinthe and Nicolet R&D sites)

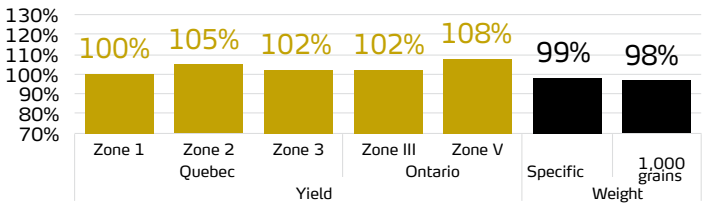
Features Index (1) having the best performance
Based on the average of bread wheat cultivars recommended by the CRCQ 2016-2018

Recommendations:

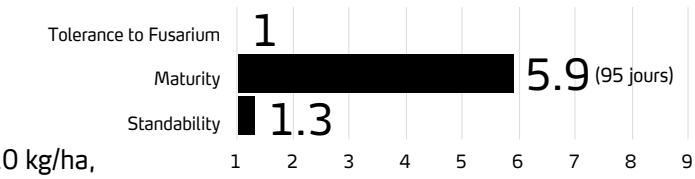
- Seeding rates 415 seeds/m² (140 to 150 kg/ha, for a 1000 seed weight of 33.8 g)
  * Always use the 1000 seed weight, add 10% for untreated seeds.
- Nitrogen dose: 125 to 150 kg/ha * according to yield potential.
- Fungicide: T1: If needed
  T2: Essential
  T3: Essential
- Growth regulator: in risk of lodging, otherwise not necessary.

Major... high tolerance to Fusarium

- None-bearded wheat, late maturing with long straw
- Admissible to Pool C of the OWB since 2012
- Major is one of Quebec bread wheat with the best tolerance to Fusarium head blight (index 2) in Eastern Canada



Crop management positioning
(according to 2017, 2018 and 2019 plot results, Synagri Saint Hyacinthe and Nicolet R&D sites)



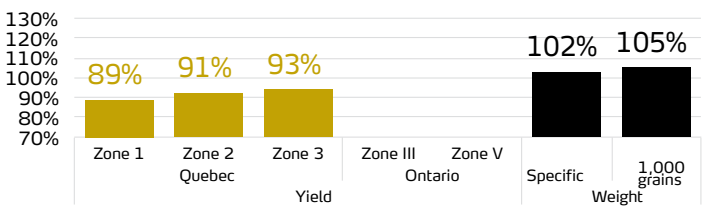
Features Index (1) having the best performance
Based on the average of bread wheat cultivars recommended by the CRCQ 2017-2019

Recommendations:

- Seeding rates 495 to 575 seeds/m² (190 to 220 kg/ha, for a 1000 seed weight of 38.3 g)
  * Always use the 1000 seed weight, add 10% for untreated seeds.
- Nitrogen dose: 125 to 150 kg/ha
- Fungicide: T1: If needed
  T2: If needed
  T3: If needed
- Growth regulator: Recommended in conditions where there is a risk of lodging

Megantic... a small early miller

- Ranked bread wheat
- Accepted at the Ontario Wheat Board
- One of the earliest maturating varieties at the RGCQ trials
- Very good combination of agronomic, bread-making and disease tolerance characteristics
- High yield, particularly productive in cool areas.



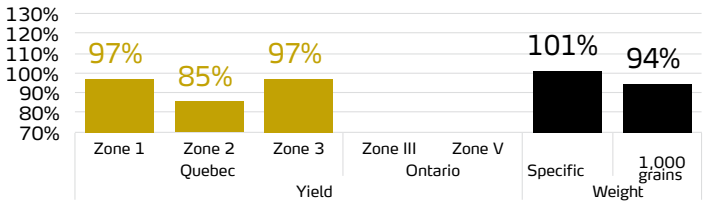
Features Index (1) having the best performance
Based on the average of bread wheat cultivars recommended by the CRCQ 2017-2019

Recommended seeding rates for a 1000 seed weight of 40.9 g:

- Conventional: 175 to 180 kg/ha for an average seeding density of 425 grains/m²
- High performance: 225 to 230 kg/ha for an average seeding density of 550 seeds/m²

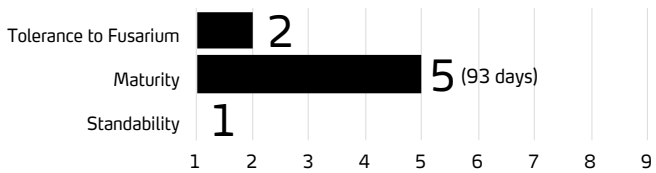
Temis... for your fodder needs

- Feed wheat for use alone or mixed to meet the needs of animal consumption
- Long straw with excellent resistance to lodging
- High tolerance to Fusarium (2 index)



Recommended seeding rates for a 1000 seed weight of 35.3 g:

- Conventional: 150 to 155 kg/ha for an average seeding density of 425 seeds/m^2
- High performance: 190 to 195 kg/ha for an average seeding density of 550 seeds/m^2

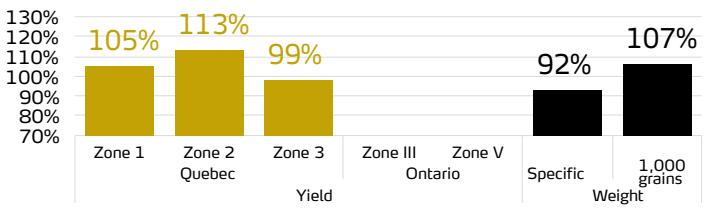


Features Index (1) having the best performance
Based on the average of bread wheat cultivars recommended by the CRCQ 2017-2019

Spring Triticale CIRCUIT

NEW

- Higher yield
- Excellent disease tolerance
- Good maturity
- Also used as a cover crop and forage supplement



Recommended seeding rates for a 1000 seed weight of 40.6 g:

- Conventional: 175 to 180 kg/ha for an average seeding density of 450 seeds/m^2

Features Index (1) having the best performance
Based on the average of bread wheat cultivars recommended by the CRCQ 2017-2019

BASTILE Hulless Barley

can partially and advantageously replace corn in dairy cattle feed

Human food (hulled barley and pearl barley)

Ruminant feed (partial replacement of corn in dairy herd rations)

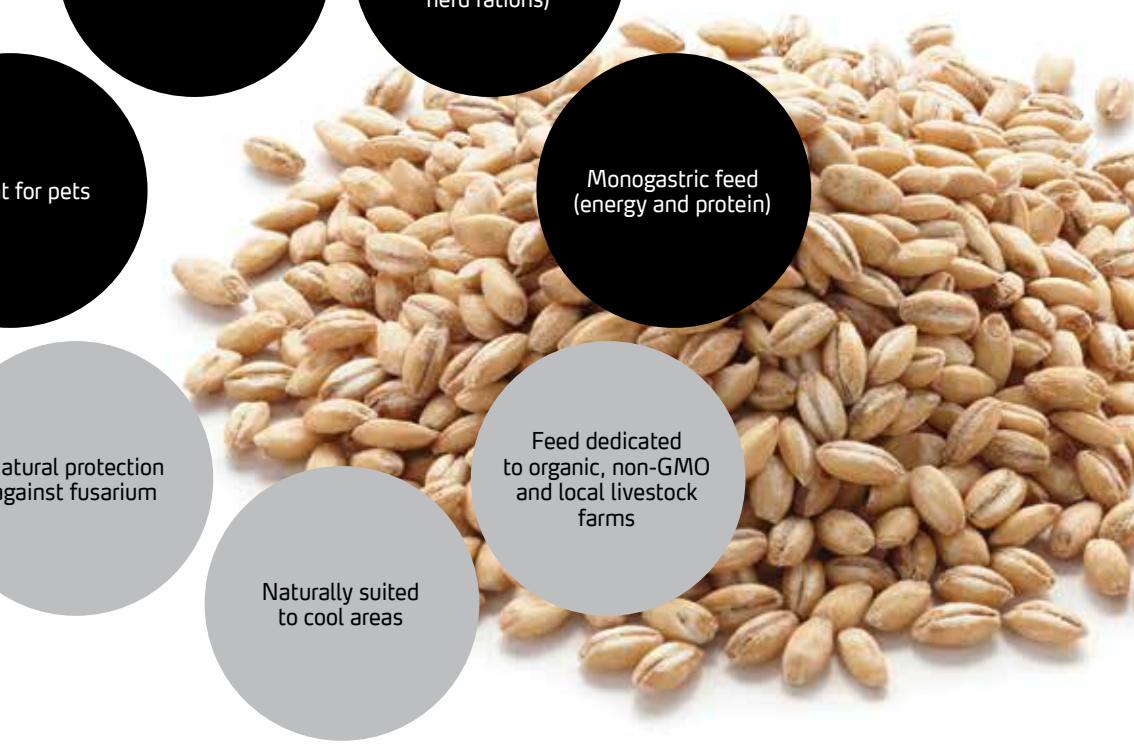
Nutrient for pets

Monogastric feed (energy and protein)

Natural protection against fusarium

Feed dedicated to organic, non-GMO and local livestock farms

Naturally suited to cool areas



Yield

2.1 MT/ac

Specific weight

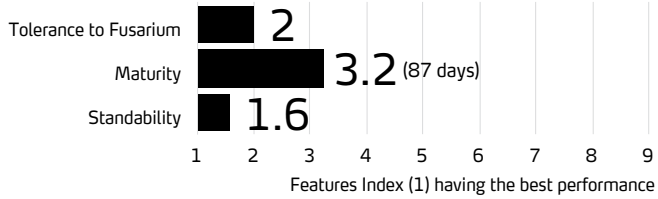
72.3 kg/hl

- On-farm use for livestock farming or possibility of buy-back by our grain commercialization service

Sources :

- Yield and specific weight (2017–2018–2019) results for Synagri seed producer
- Index of characteristics based on the average of barley varieties recommended by the RGCQ 2016–2018

Features



AGRINOVA
RECHERCHE ET INNOVATION EN AGRICULTURE

Cristiano Côrtes, Ph. D.
Annie Perron, Agr.
Vicky Poirier, Agr.

Stéphanie Claveau, Biol., M. Env.
Gérard Landry, Agr.

YouTube
https://youtu.be/sNzg05bnotE

Context

In recent years, it has become increasingly popular among dairy farmers to optimize the use of farm-produced grains in their herd's feed. In more northern regions, such as the Saguenay–Lac-Saint-Jean region, the production of corn, the reference energy feed, is rather minimal due to the short growing season and the low corn heat units brought about by the climate. Companies are therefore constantly looking for crops with the characteristics needed to grow in northern conditions and that can be used to provide energy for their livestock feed. Since barley is an early cereal with a good energy source, it represents an interesting alternative.

Goals

To study the effects of hulless barley as a replacement for corn on the zootechnical and technical-economic performance of dairy cows under commercial farm conditions.

Methodology

Two homogeneous groups of cows at the start of the trial

Treatment	Corn (n = 15)	Hulless Barley (n = 15)
Lactation days	115	115
Parity	2.9	3
Milk production (kg)	41	41
Fat (%)	4.36	4.58
Protein (%)	3.51	3.45
SCC/ml	68 000	60 000
LPI	2 367	2 309

Ingredient	Corn	Hulless Barley
Supplement	1 208 g	243 g
Corn	3.4 kg	0
Hulless Barley	0	3.4 kg
Mineral	244 g	345 g

- Cow tracking;
- Bolus pH and temperature on two sentinel cows from each group;
- Milk components on six milk checks.

irda INSTITUT DE RECHERCHE ET DE DÉVELOPPEMENT EN AGROENVIRONNEMENT

2018 Economic Study

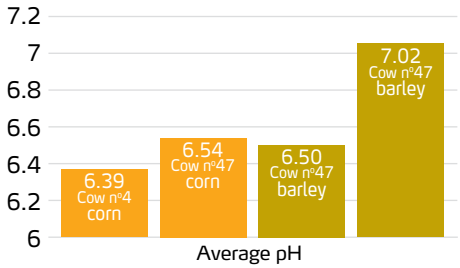
Purchase price of ground corn ($/t)	Purchase price of ground hulless barley		
	$275	250 $	225 $
$255	$138	169 $	200 $
$265	$169	181 $	213 $
$275	$200	194 $	225 $
$285	$150	206 $	238 $
Savings between $6,900 and $11,900 per year for a herd of 50 cows			

Purchase price of ground corn ($/t)	Hulless barley yield (t/ha)				
	3	3.5	3.8	4	4.5
$255	3.5	179 $	200 $	212 $	237 $
$265	3.8	191 $	212 $	224 $	250 $
$275	4	203 $	225 $	237 $	262 $
$285	4.5	216 $	237 $	249 $	275 $
Savings between $6,675 and $13,750 per year for a herd of 50 cows					

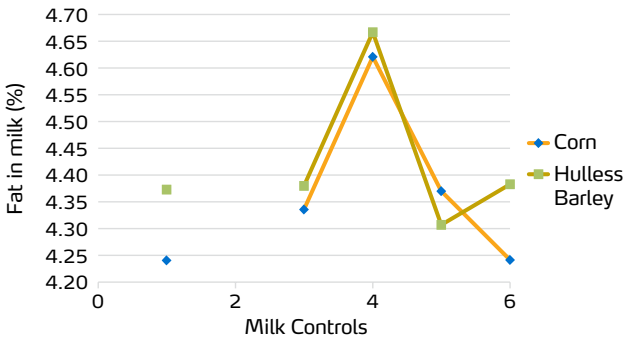
Zootechnical Results

Treatment	Corn	Hulless Barley	P-value
Milk production (kg/day)	36.9	37.1	0.91
Milk production 4% (kg/day)	38.4	39	0.72
Milk composition (%)			
Fat (%)	4.36	4.42	0.44
Protein	3.51	3.55	0.34
Lactose	4.61	4.56	0.08
Total solids	13.53	13.53	0.73
Urea (N mg/dL)	9.94	11.25	< 0.001
SCC/ml	145 000	116 000	0.44

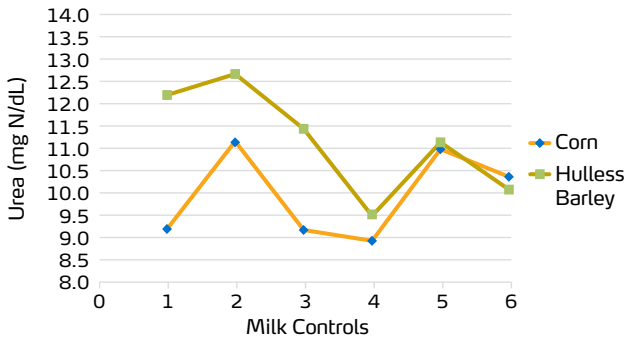
Average Ruminal pH Values of Four Sentinel Cows



Milk Fat Composition



Urea Milk Composition



Conclusion

- Substitution of 38.5% of corn by hulless barley = equivalent zootechnical performances
- Hulless barley: an interesting alternative for northern regions and organic farms (non-GMO hulless barley)
- It is preferable to include hulless barley in a PMR or a TMR (avoid any sorting)
- Instead of purchase, on-farm hulless barley production is more advantageous if a yield of 4 t/ha or more is achieved.

Financial Partners

Agriculture, Pêcheries et Alimentation Québec

synAgri

ACKNOWLEDGEMENTS

- Gabriel Guay and Jacob Gauthier (Ferme des Sureaux inc.)
- Cécile Tétreault, (Synagri)
- Frédérick Ouellet, Agr.

Bastile... high nutritional intake

- A 6-row hulless barley that is particularly well adapted to the colder regions
- Variety developed for animal feed to replace corn
  - in zones dedicated to small grains
  - to reduce the impact of toxin content (vomitoxins)
- Very high volumetric weight
- Average straw and appearance
- Excellent Fusarium index

Crop management positioning
(according to 2018 and 2019 plot results, Synagri Saint-Hyacinthe and Nicolet R&D sites)

Recommendations:

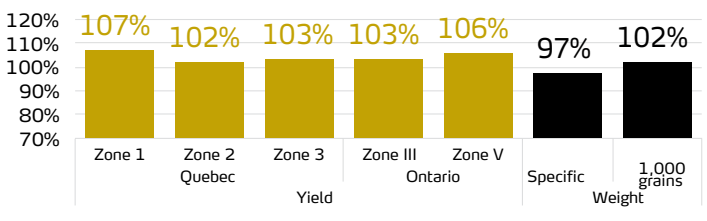
- Seeding rates 415 to 485 seeds/m^2 (170 to 200 kg/ha, for a 1000 seed weight of 41.0 g)
  * Always use 1000-seed weight.
- Nitrogen dose: 80 to 110 kg/ha
- Fungicide: T1: If needed
  T2: Optimal
  T3: Optimal

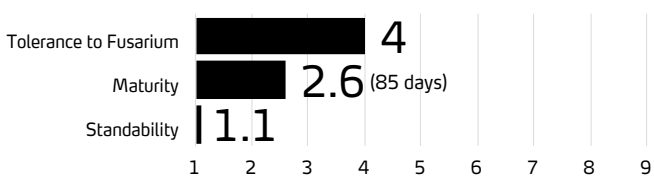
Growth regulator: Recommended

In 2019, trials showed a 20% increase in yield.

Oceanik... a little early

- It's a check for the tolerance to Fusarium in the RGCQ
- Excellent yield in Ontario zone III
- One of the earliest barley varieties
- Straw and lodging between Synabelle and Synasolis
- Index 4 on the Fusarium scale





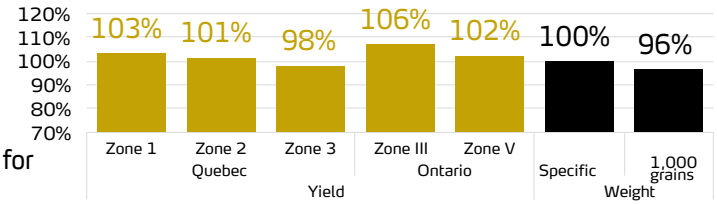
Features Index (1) having the best performance
Based on the average of the 6-row barley cultivars recommended by the CRCQ 2017-2019

Recommended seeding rates for a 1000 seed weight of 46.4 g:

- Conventional: 174 to 180 kg/ha for an average seeding density of 375 seeds/m^2
- High performance: 205to 210 kg/ha for an average seeding density of 440 seeds/m^2

Masky... improved yield

- Yield improvement over Harmony, particularly in zone 3 in Quebec
- Excellent standability
- Short straw
- Rating of 4 for Fusarium and good tolerance for foliar diseases



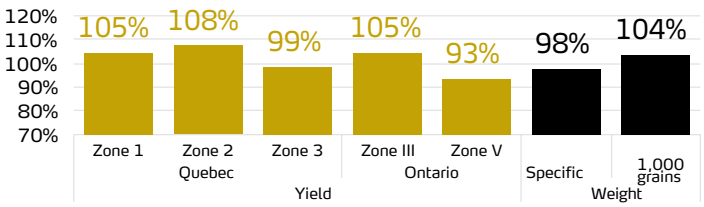
Recommended seeding rates for a 1000 seed weight of 43.6 g:

- Conventional: 165 to 170 kg/ha for an average seeding density of 375 seeds/m^2
- High performance: 195 to 200 kg/ha for an average seeding density of 440 seeds/m^2

Features Index (1) having the best performance
Based on the average of the 6-row barley cultivars recommended by the CRCQ 2017-2019

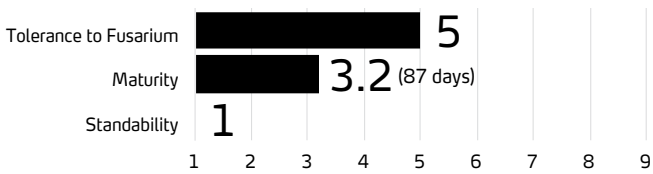
Harmony... perfect for use alone or in mixture

- Large grains, high thousand kernel weight and good yield
- Long straw, tolerant to lodging
- Ranks in the best for its straw yield index of all the varieties in Ontario zone V more than 6.9 tm/ha



Recommended seeding rates for a 1000 seed weight of 47.2 g:

- Conventional: 180 to 185 kg/ha for an average seeding density of 375 seeds/m^2
- High performance: 205 to 210 kg/ha for an average seeding density of 440 seeds/m^2



Features Index (1) having the best performance
Based on the average of the 6-row barley cultivars recommended by the CRCQ 2017-2019

COMPARISON OF THE DIFFERENT SYNAGRI CEREAL VARIETIES

	Zone 1				Zone 2			
OAT	AVERAGE Relative yield (%)	lodging (0-9)[1]	Maturity (days)	Specific weight (kg/hL)	AVERAGE Relative yield (%)	lodging (0-9)[1]	Maturity (days)	Specific weight (kg/hL)
Vitality	87	2.7	86	51.7	89	3.7	87	53.4
Hidalgo	89	3.7	83	53.2	95	4.2	87	52.8
Synextra	93	2.5	83	54.3	100	3.7	85	56.2
AAC Banner	104	2.1	87	52.5	99	3.1	89	52.1
WHEAT								
AAC Synox	106	2.4	88	81.4	97	1.6	95	81.1
RGT Presidio	107	1.3	90	77.5	108	1.1	96	73.7
Major	101	2.5	92	79.5	104	1.4	99	77.4
Mégantic	94	2.7	85	79.7	97	2.5	91	80.1
Témis	97	1.9	92	76.2	84	0.9	96	73.3
Spring Triticale	111	2.5	90	69.6	123	1.1	92	67.5
COVERED BARLEY								
Océanik	107	1.6	79	63.1	102	1.3	85	63.1
Harmony	105	1.1	82	64.1	108	0.9	88	63
Masky	103	1.2	81	64.9	101	0.8	87	64.8

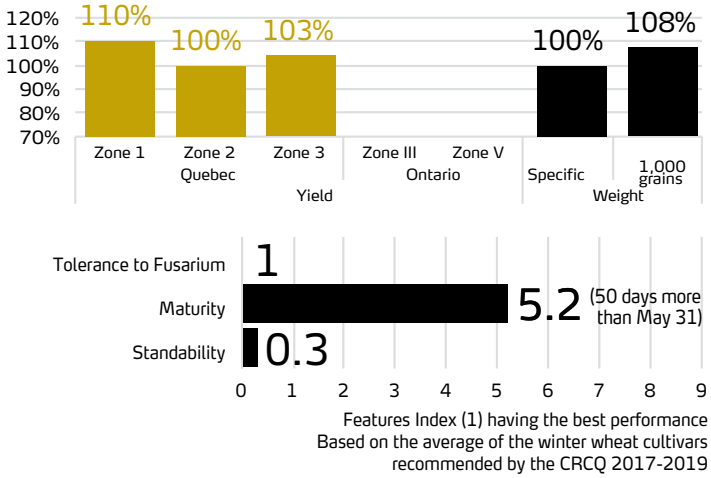
Source: 2018 CRCQ results

1. Lodging intensity can vary from zero (0) to total (9)
2. Scale for Fusarium head blight:
   1: not very sensitive;
   9: extremely sensitive
3. Scale:
   R: resistant;
   1: not very sensitive;
   2: moderately sensitive ;
   3: very sensitive;
   4: extremely sensitive

Zone 3						Sensitivity to other diseases (1-4)[3]			
AVERAGE Relative yield (%)	lodging (0-9)[1]	Maturity (days)	Specific weight (kg/hL)	Straw (cm)	Sensitivity to Fusarium (1-9)[2]	Yellow dwarf	Speckled Leaf Blotch	Crown rust	
88	1.3	94	55.5	92	2	3	2	2	
100	1.6	92	55.2	85	1	2	2	3	
93	1.9	92	57.7	103	1	3	2	4	
101	1.6	96	54.0	87	1	2	3		
						Oidium (white)	Leaf rust (brown)	Stripe rust (yellow)	Leaf spot
94	0	98	81.4	91	2	2	1	3	2
118	0	101	78.5	81	4	1	2	1	2
94	0	104	78.7	97	2	1	1	1	1
96	0.1	97	82.8	96	4	3	2	1	2
97	0	98	77.6	93	2	2	1	1	2
104	1.5	100	71	99		2	0	0	3.9
						Leaf spot	Oidium (white)	Leaf rust	
103	0.4	90	63.7	79	4	3	2	2	
99	0.6	92	64.0	87	5	2	1	2	
98	0.4	92	66.1	72	4	2	2	2	

Carnaval... doesn't feel the cold

- This feed quality wheat is adapted to our winter conditions
- The highest relative yield in its RGCQ trials
- Index 2 for Fusarium
- Very good winter survival, 90% average for 3 years
- Good quantity of straw with excellent resistance to lodging



Features Index (1) having the best performance
Based on the average of the winter wheat cultivars recommended by the CRCQ 2017-2019

Recommended seeding rates

- Conventional: 170 to 175 kg/ha for an average seeding density of 425 seeds/m^2
- High performance: 200 to 205 kg/ha for an average seeding density of 500 seeds/m^2

Zorro... a soft adaptable wheat

- Bread making quality
- Accepted by the "Moulins de Soulanges"
- Good long straw

Recommended seeding rates

- Conventional: 185 to 190 kg/ha for an average seeding density of 425 seeds/m^2
- High performance: 205 to 210 kg/ha for an average seeding density of 500 seeds/m^2

Facts on Cereal Mixtures

The components variation percentage (± 5%) is not necessarily the most important factor in the choice of a mixture. The environmental conditions in the current year determine the development of every component in the mixture. There is a complex relationship between seed characteristics and the environment in which they will compete with one another for space, water, nutriments and light. There are more advantages in growing mixtures in an uncertain farming environment.

SYNAGRI CEREAL SEED MIXTURE

All the SYNAGRI exclusive cereal seed mixtures are designed to ensure the best combination of varieties according to the nutritional needs required. Particular attention is always a priority in order to harmonize the maturity, length of straw and tolerance to lodging in the combined varieties.

Cereal Mixtures with 2 varieties...

to improve the nutritional value of oat

	Species	Varieties[1]	Seedind rate	Benefits
SEM 610	60 % Wheat 40 % Oat	Temis Hidalgo	140 kg/ha	▪ Protein and energy contribution from the wheat ▪ Curative, fibrous contribution from the oats ▪ Balanced mix in less fertile soils and a better nutritional yield

Cereal Mixtures with 3 varieties...

best mixtures for balance, in the field and in the barn

	Species	Varieties[1]	Seedind rate	Benefits
SEM 620	60 % Wheat 20 % Oat 20 % Hulless Oat	Temis Hidalgo Navan/Shadow	140 kg/ha	▪ Very popular mix with good yield potential, intermediate to Sem 600 and Sem 610
SEM 530	50 % Wheat 25 % Oat 25 % Hulless Oat	Temis Hidalgo Navan/Shadow	135 kg/ha	▪ Mix similar to Sem 600, but with a greater amount of covered oats ▪ Possibility of seeding in a greater range of soils
SEM 520	50 % Wheat 25 % Oat 25 % Barley	Temis Hidalgo Harmony	135 kg/ha	▪ Balanced nutritional ratio ▪ Very good yield potential ▪ Excellent synergy between species ▪ Great adaptability
SEM 350	35 % Wheat 35 % Peas 30 % Oat	Temis CDC Meadow Hidalgo	165 kg/ha	▪ Uniform maturity, balanced mix ▪ Basis of a well-balanced animal feed ▪ Good protein input coming from peas and wheat ▪ Adaptable to every soil type

Cereal Mixtures with 4 varieties...

for constant and balanced mixtures

	Species	Varieties[1]	Seedind rate	Benefits
SEM 250	25 % Wheat 25 % Oat 25 % Barley 25 % Peas	Temis Hidalgo Harmony CDC Meadow	165 kg/ha	▪ Diversified mix combining different species ▪ Very well-balanced to act as a base in quality animal feed ▪ Balanced components

1. Subject to availability

Forage Mixtures with 2 or 3 varieties...

for use as a cover crop, green crop harvested at the filling stage

	Species	Seedind rate	Benefits
SEM 500	50 % Forage Oat 50 % Forage Peas	120 kg/ha	• Mix similar to Sem 400 but without the wheat • Totally appropriate for Quebec's cooler regions • Better yield than seeding a single forage plant • Oats contributes to yield and nutritional qualities • Peas preserve quality in case of late harvest • Helps ingestion
SEM 400	40 % Forage Wheat 40 % Forage Peas 20 % Forage Oat	130 kg/ha	• Extremely efficient mix that can attain 3800 to 4500 kg/ha of dry matter at the first cut • Wheat has a better yield than oats, especially in warm regions • Possible analysis of 16 to 20% total protein • Adaptable to many types of storage • Peas preserve quality in case of late harvest • Can be grown in any soil type • Good competition for weeds • Maintains good soil

Seeding rate

Recommended seeding rates are given for guidance only; the weight of 1000 each specific grains each lot remains the best tool for the calculation of an accurate seeding.

Spring Wheat	425 to 550 grains/m²
Barley	375 to 440 grains/m²
Oat	350 to 400 grains/m²

Seeding rate for different varieties used as a cover crop:
-30% of the density of the seed suggested

1000 Seed Weight (TKW) in Grams of the Variety to Seed

Desired established population (plants/m²)	Seeding density (grains/m²)	30		32		34		3
		lb/a	kg/ha	lb/a	kg/ha	lb/a	kg/ha	lb/a
280	325	87	98	93	104	98	111	104
300	350	94	105	100	112	106	119	112
320	375	100	113	107	120	114	128	120
340	400	107	120	114	128	121	136	128
360	425	114	128	121	136	129	145	136
380	450	120	135	128	144	136	153	144
400	475	127	143	135	152	144	162	152
420	500	134	150	143	160	151	170	160
440	525	140	158	150	168	159	179	168
460	550	147	165	157	176	167	187	176
480	575	154	173	164	184	174	196	184
500	600	160	180	171	192	182	204	192

Source: CPVQ 1988 - Spring Cereals

Determining the Seeding Rate

The seeding rate in kg/ha (lb/ac) is calculated according to the desired density and seed size (g/1000 seeds). For the same population, the smaller the seed, the lower the seeding rate.

kg/ha = (g/1000 seeds) × (seeds/m²)/100

Example of seeding rate calculation:

AAC Synox wheat weighing 40 g for 1000 seeds. For a seeding density of 450 seeds/m².
(40 g/1000 seeds) × (450 seeds/m²)/100 = 180 kg/ha

Number of seeds to be sown by linear meter in relation to the disc row spacing and the desired number of seeds per square meter.

Row spacing		Desired Number of Seeds per m^2												
In	mm	300	325	350	375	400	425	450	475	500	525	550	575	600
4	102	30.6	33.2	35.7	38.3	40.8	43.4	45.9	48.5	51	53.6	56.1	58.7	61.2
5	127	38.1	41.3	44.5	47.6	50.8	54	57.2	60.3	63.5	66.7	69.9	73	76.2
6	152	45.6	49.4	53.2	57	60.8	64.6	68.4	72.2	76	79.8	83.6	87.4	91.2
7	178	53.4	57.9	62.3	66.8	71.2	75.7	80.1	84.6	89	93.5	97.9	102.4	106.8

6		38		40		42		44		46		48		50	
kg/ha	lb/a	kg/ha	lb/a	kg/ha	lb/a	kg/ha	lb/a	kg/ha	lb/a	kg/ha	lb/a	kg/ha	lb/a	kg/ha	
117	110	124	116	130	122	137	127	143	133	150	139	156	145	163	
126	118	133	125	140	131	147	137	154	143	161	150	168	156	175	
135	127	143	134	150	140	158	147	165	154	173	160	180	167	188	
144	135	152	143	160	150	168	157	176	164	184	171	192	178	200	
153	144	162	151	170	159	179	167	187	174	196	182	204	189	213	
162	152	171	160	180	168	189	176	198	184	207	192	216	200	225	
171	161	181	169	190	178	200	186	209	195	219	203	228	212	238	
180	169	190	178	200	187	210	196	220	205	230	214	240	223	250	
189	178	200	187	210	196	221	206	231	215	242	224	252	234	263	
198	186	209	196	220	206	231	216	242	225	253	235	264	245	275	
207	195	219	205	230	215	242	225	253	236	265	246	276	256	288	
216	203	228	214	240	224	252	235	264	246	276	257	288	267	300	

Note: The desired population, in plants/m2, represents 85% (minimum germination percentage required for grade 1 pedigreed seeds) of the seeding density in seeds/m^2.

You can also use the table above; Weight of 1000 seeds in grams of the variety to be sown.

The first column represents the desired established population (plants/m^2) in the field for a minimum germination of 85%. If the germination is higher, the established population will also be higher. The second column represents the seeding density (seeds/m^2) to be used to obtain the desired final field population. This column should also be used to calculate the seeding rate. For example, if we use a seeding density of 450 seeds/m^2 and the germination rate of our seed is 85%, we can expect to have a population of 380 plants/m^2. The other columns of the table represent the seeding rate in kg/ha or lb/ac depending on the 1000 seed weight (1st row).

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66056-0719

Daniel

Daniel Barré, agr.

Corn-Soybean & Market Development Manager

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IP SOYBEANS

Profitability and resistance to *White Mold* with our IP soybeans.

Our IP (Identity Preserved) varieties of conventional non-GMO soybeans are among the best for their resistance to *White Mold*, lodging, as well as their yield. We buy all the harvests of our SOYHINOVA varieties.

We have had two different suppliers for IP soybeans since last fall. For the SOYHINOVA line, we have Nova Grain and for the Belcan Seed line, we have St-Lawrence Beans.

We have three new varieties in the SOYHINOVA line: a 2550 CHU, a 2725 CHU, and a 2850 CHU high protein.

Last year, we acquired exclusive distribution of the Belcan soybean line. This includes five varieties of soybeans ranging from 2500 CHU to 2850 CHU. Belcan allows us to cover Southwestern Québec and Eastern Ontario by offering us a new storage site in Sainte-Marthe. In addition, certain varieties are available without any obligation to buy back the crop.

Our SYNAGRI research center allows us to develop the best possible management for each of our varieties, both from the point of view of the population, fertilization and response to fungicides. We evaluate all our varieties under Quebec conditions in order to optimize the yield potential of each.

We have two SOYHINOVA storage sites in Montérégie, in Saint-Hyacinthe and Saint-Isidore-de-Laprairie. In addition to these, we also have the Sainte-Marthe site for Belcan soybeans. A site on the North Shore could be considered if the need arises. All these sites allow us to serve our customers well.

	PRODUCT DESCRIPTION														
	IP VARIETIES														
CHU	2550			2600			2650			2725			2850		
VARIETIES	SYN110190Z027 (ASAHI)			ASUKA			KYOTO			SYN110373Z002 (KAGAWA)			SYN120117Z-03 (SUWA)		
Seeds/kg	5000-6000			4400-5400			4800-5400			4000-4500			3500-4000		
Row spacing (inches)	7	15	30	7	15	30	7	15	30	7	15	30	7	15	30
No. of seeds planted (X 1000/ha)	500	470	450	520	500	475	550	500	450	500	470	450	500	450	430
Seeding Rate (kg/ha)	90	85	82	104	100	95	110	100	90	118	110	106	133	120	115
No. of seeds planted (s/m)	8.9	17.9	34.3	9.2	19.1	36	9.8	19.1	34.3	8.9	17.9	34.3	8.9	17.1	32.8
Type of plant	Semi-bushy			Semi-bushy			Semi-bushy			Semi-bushy			Semi-bushy		
Height of plant	3			3			3			3			3		
Hilum color	yellow imperfect			yellow imperfect			yellow imperfect			yellow imperfect			yellow imperfect		
Protein level (%)	41.9			43.0			42.5			42.6			45.4		

Height of plant: 1 = low 3 = average 5 = high
Protein and gr/kg = variable indicating data

SYN110190Z027 (ASAHI)... Yield in early zones

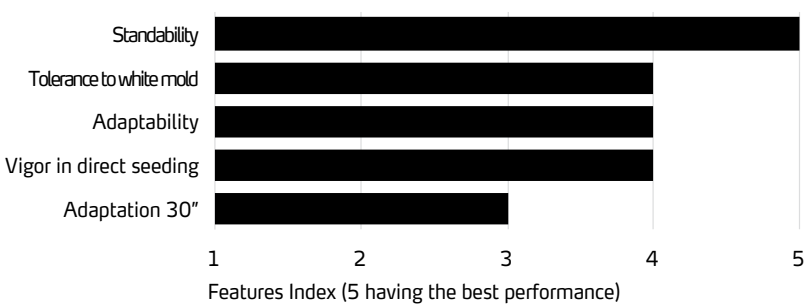
(2550 CHU) This variety is also available without insecticide treatment.

NEW

- Early variety with good agronomic characteristics
- Excellent standability
- Higher yield than Asuka and Nordika
  - RGCQ* 2018–2019 (average 2 years) 111%
  - 17% more yield than the average for Asuka and Nordika varieties in the RGCQ 2018–2019
- Good resistance to *White Mold*

MANAGEMENT:

- Optimal every 7 and 15 inches



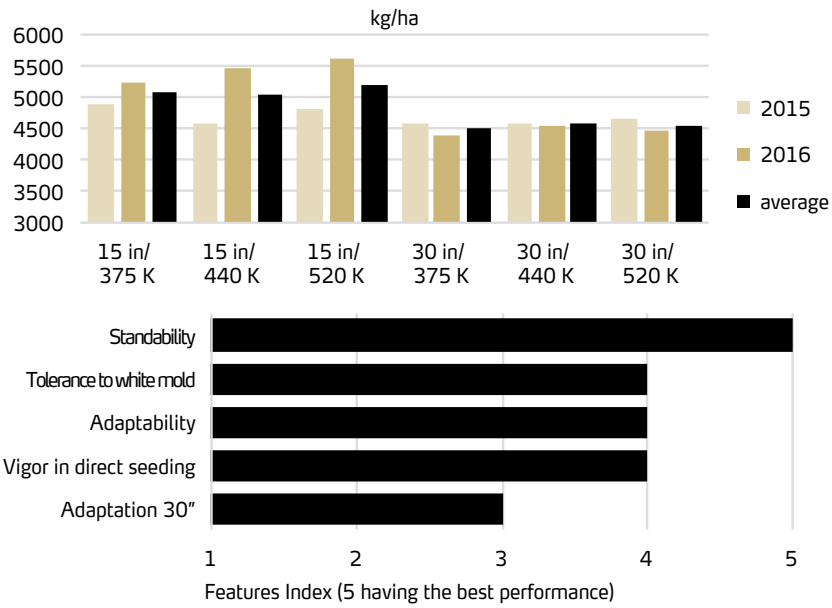
ASUKA Soybean... stable yield and suitable for multiple areas

(2600 CHU) This variety is also available without insecticide treatment.

- Consistent yield and mature as a 2500 CHU
  - RGCQ (2012-2013), 109% and RGCQ (2012-2018) 100%
  - OSVT 2017 (Ontario 2 years) 104% Ottawa, OSVT 2019 (Ontario 2 years) 99% Ottawa
- Good resistance to *White Mold*, RGCQ 2014 index at 0,4 and RGCQ 2017 index at 2,5
- Excellent standability
- Hardiness and stability in various environments

MANAGEMENT:

- Optimal every 15 inches (seeding rate of 520K seeds/ha): Synagri R&D 2015-2016
- Suitable for direct seeding
- Suitable for all spacings, but optimal at 7 and 15 inches



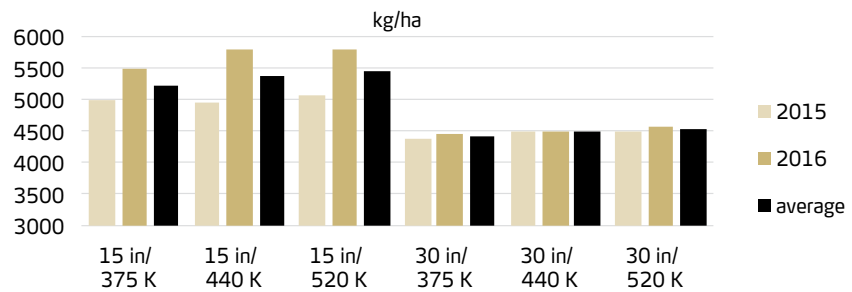
KYOTO Soybean... new reference against *White Mold*

(2650 CHU) This variety is also available without insecticide treatment.

- Variety with outstanding agronomic qualities
- Excellent standability
- Consistently high performance under our conditions
  - RGCQ* 2011-2013 (average 3 years) 100%, RGCQ * (2017-2019), 93%
  - OSVT 2017-2019 (Ontario 3 years) 97% Ottawa
  - OSVT 2017 (Ontario 2 years) 111% Ottawa
- Good protein
- Organic KYOTO contract available
- Excellent resistant to White Mold, the best rating at the RGCQ 2013,2014, 2015, 2016, 2017 and 2018 with an index 0.7

MANAGEMENT:

- Optimal every 15 inches (seeding rates 440 to 520 k seeds/ha): Synagri R&D 2015-2016
- Performs well with 7 to 30-inch spacings
- Adapted for direct seeding
- Suitable for all types of soil



SYN110373Z002 (KAGAWA) ... An excellent substitute for Nagoya

NEW

(2725 CHU)

- Excellent tolerance to *White Mold* with a score of 1.0 RGCQ 2019
- Excellent standability
- Higher yield than Nagoya
  - RGCQ* 2018–2019 (average 2 years) 103%
  - 6% higher yield than Nagoya in the RGCQ 2018–2019
- Good protein level at 42.6% at RGCQ 2018–2019

MANAGEMENT:

- Optimal every 15 and 30 inches

SYN120117Z-03 (SUWA)... A high tofu-type protein

NEW

(2850 CHU)

- High-premium variety
- Good profitability per hectare
- Good standability
- Very well suited for 30-inch good row filling
- Good yield for a high protein
- Excellent protein level at 45.4%.

MANAGEMENT:

- Optimal every 30 inches

NEW

for 2020-2021

As mentioned last year, we have been looking for varieties to modernize our portfolio. We have 3 new SOYHINOVA varieties, one for each maturity range. In addition, we have 5 soybean varieties through Belcan Seeds.

The maturities of these range from 2500 CHU to 2850 CHU. We have the tools to meet the needs of farmers.

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We create chemistry

Tough diseases in soybeans? Two can play at that game.

Priaxor® Xemium® Fungicide | **Cotegra®** Fungicide

Protect your soybeans with our advanced fungicides.

Why settle for ordinary solutions to protect your investment? Not only will Priaxor® fungicide prevent tough leaf diseases like Septoria, it helps soybeans thrive with the unique plant health benefits[1] of **AgCelence®**. And when risk of white mold is high, Cotegra® fungicide delivers the new standard of protection. Used alone or in conjunction, they generate returns that'd make any bean counter's day. Visit **agsolutions.ca/soybeanfungicides** to learn more.

[1]**AgCelence** benefits refer to products that contain the active ingredient pyraclostrobin.

Always read and follow label directions.

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	PRODUCT DESCRIPTION														
	Belcan Seeds VARIETIES														
CHU	2500			2650			2700			2775			2825		
VARIETIES	AAC INVEST 1605			OAC CHAMPION			OAC EVOLUTION			OAC ACCLAIM			OAC ELEVATION		
Seeds/kg	5700			5000			5000			5200			4900		
Row spacing (inches)	7	15	30	7	15	30	7	15	30	7	15	30	7	15	30
Number of seeds planted (x 1000)/ha				500	450	420	450	420	400	500	450	420	500	450	420
Seeding rate (kg/ha)				100	90	84	90	84	80	96	87	81	102	92	86
Type of plant	Semi-bushy			Semi-bushy			Semi-bushy			Semi-bushy			Semi-bushy		
Height of plant in cm	75			83			78			64			79		
Hilum colour	Yellow			Imperfect yellow			Imperfect yellow			Imperfect yellow			Imperfect yellow		
Protein level (%)	45.8			42.0			40.0			42.0			44.0		
Yield	3.8			4.0			5.0			5.0			4.5		
Standability	3.5			4.0			4.8			5.0			4.6		
Disease resistance	3.5			4.1			4.0			4.1			4.0		
Adaptability	4.0			4.2			4.0			4.0			4.0		
Vigor	4.0			4.0			4.5			5.0			4.0		
Adaptation 30 inches	3			3.5			3.5			4.0			4.5		

Height of plant: 1=small, 3=mean, 5=high
The protein level and seeds/kg are only informative

AAC INVEST 1605

2500 CHU

- Very high-protein variety
  - OSVT 2019 (Ontario 3 years) 83% Ottawa
- Good yield for this maturity
- Suitable for all types of soil
- No harvest buyback obligation
- Organic buyback contract available

OAC CHAMPION

2650 CHU

- Excellent tolerance to *White Mold*
  - OSVT 2019 (Ontario 3 years) 99% Ottawa
- Very high demand on the IP market
- Organic buyback contract available

OAC EVOLUTION

2700 CHU

- Excellent tolerance to *White Mold*
- Excellent yield potential
  - OSVT 2019 (Ontario 2 years) 115% Ottawa
- No harvest buyback obligation

OAC ACCLAIM

2775 CHU

- Very good standability
- Very good tolerance to phytophtora
- Excellent yield potential
  - OSVT 2019 (Ontario 3 years) 108% Ottawa
- No harvest buyback obligation

OAC ELEVATION

2825 CHU

NEW

- Very high-protein variety
- Excellent tolerance to phytophtora
- No harvest buyback obligation

Vincent

Vincent Tétreault

Quality Assurance Coordinator / Seed Analyst

vincent.tetreault@synagri.ca

QUALITY ASSURANCE

The seed sector is an evolving sector. More and more seeds are the privileged vehicle of new technologies and the source of the identity of the varieties in which we place our trust. It is imperative to put proven quality control in place, to ensure full integrity.

At all stages of production, our varieties are systematically inspected, sampled, analyzed and evaluated on the germination level. At all these stages, they must meet the standards established by the Seeds Act and its Regulations of the Canadian Food Inspection Agency (CFIA). The Canadian Seed Grower Association sets the rules for field production and issue crop certificates. Subsequently, the Canadian Seed Institute (CSI) regulates the operation of Registered Seed Establishments for the purposes of the Seed Act and its regulations. It's the Commercial Seed Analysts Association of Canada, who oversees the work of seed analysts. Synagri is directly involved through all these associations in order to reach the highest quality standards. A quality seed is the first pledge of a good harvest!

YARA

Knowledge grows

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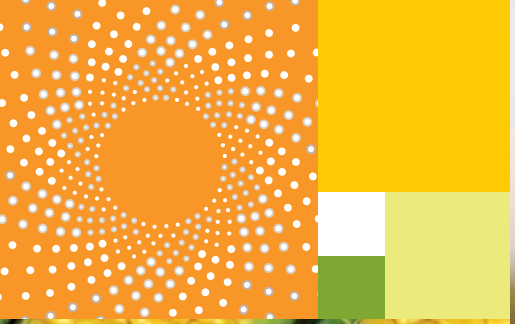
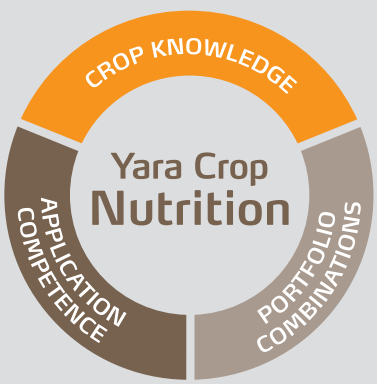




Yara grows knowledge to responsibly feed the world and protect the planet. Yara's activity and influence on a global scale is part of the food - resources - climate relationship. Sustainable agricultural development is at the heart of its commitment: strengthening food security while reducing emissions and their environmental impact and supporting rural development.

Operating for more than 20 years in Canada, Yara's Contrecoeur, Quebec terminal is ideally situated for accessibility in the main agriculture regions in Eastern Canada. Yara's commercial team is committed to supporting customers and increasing grower profitability through a comprehensive crop nutrition portfolio and more than 100 years of global and regional agronomic insights.

For more information about Yara's crop nutrition portfolio, reach out to Regional Sales Manager Julien Camaléonte at Julien.Camaleonte@yara.com or 514-796-8968.

Denis

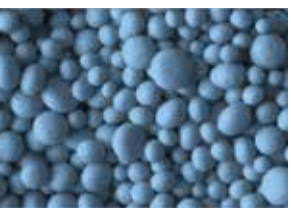
Denis Lévesque, technologist

Fertilization expert

denis.levesque@synagri.ca

FERTILIZER

We are committed to developing and offering fertilizers with research-based efficiency. As results from one year can be influenced by many factors, such as weather conditions, the data presented here are an average over several years to validate the true performance of the products.



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5*granular Starter with Micronutrients

According to identified needs by a thorough soil analysis, to fully supplement the deficiencies in zinc, boron, copper, manganese

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5*liquid Starter with Micronutrients

According to identified needs by a thorough soil analysis, to fully supplement zinc deficiencies

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40-0-0 5.5 (S) Optimal Nitrogen-Sulfur Ratio

Ideal in preplant incorporated, a stronger, less volatile, and homogeneous granule to ensure more uniform spreading

N:S:B N-POWER BLUE

Nitrogen-Sulfur-Boron Ratio

Unique composition, synergistic, compensates, less volatile, complementary

FERTILIZER 3&5★

5* granular Starter with Micronutrients

Technologies

YARA

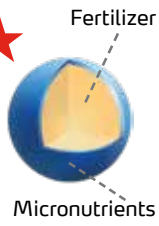
to fully supplement the deficiencies

Zn	ZINC	B	BORON	Cu	COPPER	Mn	MANGANESE

3&5★ PROGRAMS

Our 3 and 5 Star programs are fertilization concepts that boost soil capacity to release nutrients from the soil using fertilizer bases with specific characteristics. In addition, we have known for a long time that deficiencies in minor elements such as zinc, boron, copper and manganese limit the development and yield of crops.

5★



The minor granular elements added at a rate of a few kilograms per ton of fertilizer are poorly distributed in the fertilizer strip and therefore inefficient. This is why our 5 Star programs have integrated the Microsyn technology which consists of coating each granule with minor elements. This ensures an even distribution on the ground of these elements.

5★ Micronutrients coated on each granule

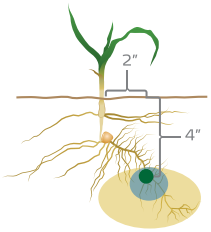
Technologies

YARA

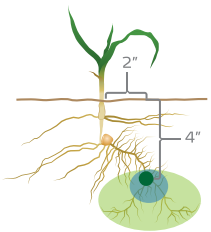
Granular micronutrients in mixture (lb/acre)

convincing results in corn

Root difference at V2
In 2X2 placement

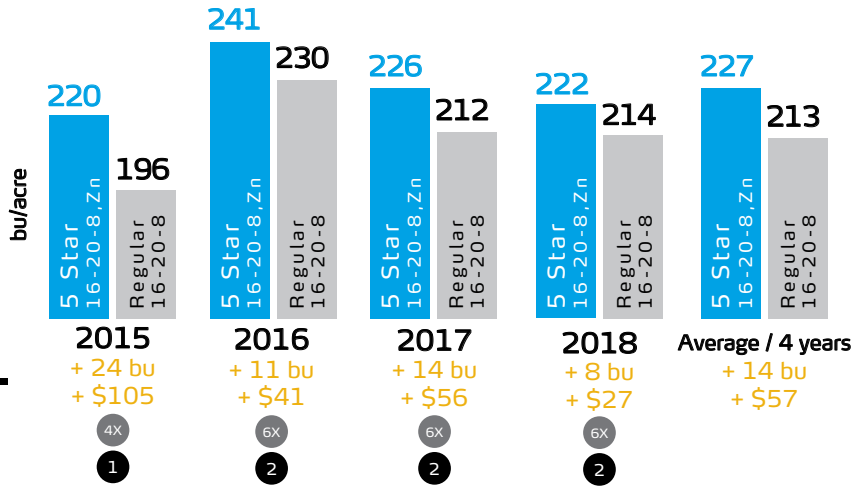


Base : CAN + DAP



5★

GRANULAR 5 STAR STARTER WITH MICROSYN TECHNOLOGY vs REGULAR CAN-DAP

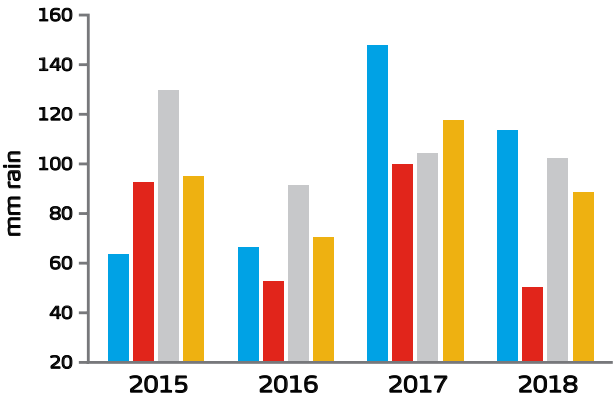


Gain with 5 Star Starter
acre
Number of replicates
Number of site

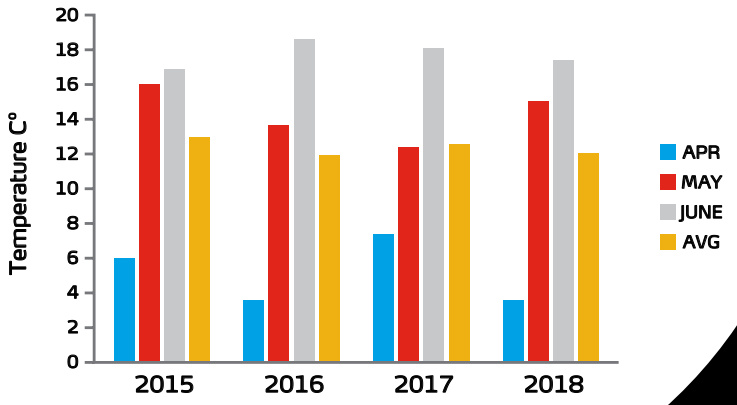
- Site: Saint-Hyacinthe
- Source: R&D Synagri
- Corn at $4.95/bu

The results show a higher profitability with the 5 Star. The gains are not the same from one year to the next. They are more significant in more difficult spring conditions such as in 2015 and 2017 where precipitations in May were above average. Moist soils warm less quickly, limiting the development of roots, hence the importance of providing a top quality starter. The spring of 2018 was the most favorable for root development with a warmer month of May and below average precipitation. This combination has limited the beneficial effect of a 5 Star starter compared to a regular starter, as the roots have benefited from more favorable conditions for their development. Nonetheless, the 5 Star starter was more profitable than the regular starter.

MONTHLY PRECIPITATION (mm)

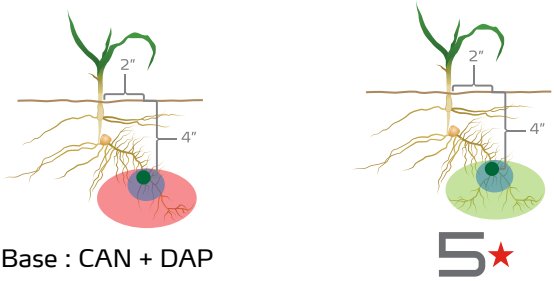


MONTHLY TEMPERATURE (Co)



Saint-Hyacinthe R&D site. Source: FieldView and Agriculture Canada

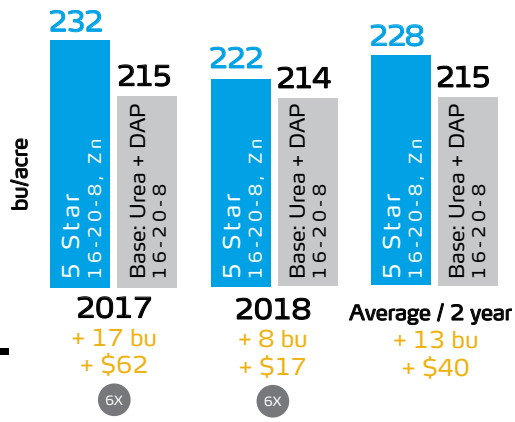
Root difference at V2
In 2X2 placement



Base : CAN + DAP

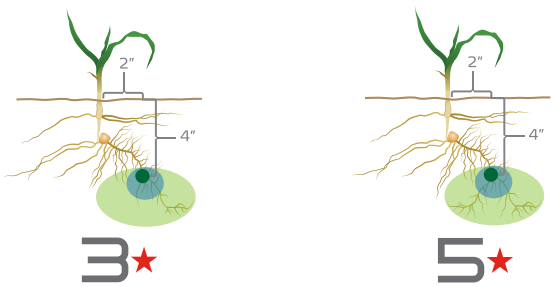
Urea and DAP (diammonium phosphate) tend to promote the presence of ammonia in early root development. The use of these bases as a starter is not optimal compared to the 5 Star that does not promote the presence of ammonia.

GRANULAR 5 STAR STARTER WITH MICROSYN TECHNOLOGY vs REGULAR UREA + DAP



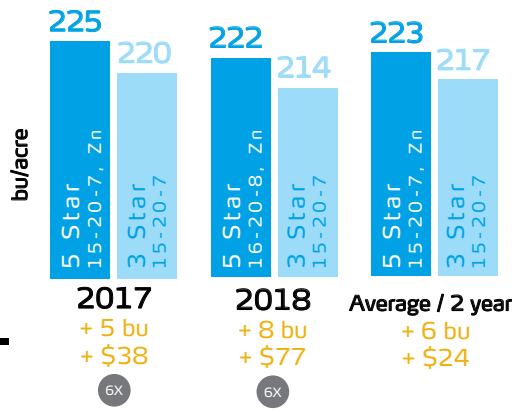
- Site: Saint-Hyacinthe
- Source: R&D Synagri
- Corn at $4.95/bu

Root difference at V2
In 2X2 placement



In this trial we have compared a 5 Star starter coated with zinc with a 3 Star that has the same attributes, but without the minor elements. Since the soil zinc index is low, the results showed the efficiency of the 5 Star with Microsyn zinc.

GRANULAR 5 STAR STARTER WITH MICROSYN TECHNOLOGY vs 3 STAR



THE RIGHT SEED, 16 SEASONS IN A ROW.

You might get about 40 chances to grow your yield of dreams, and with each passing season you learn a little bit more about how to make your next one the biggest yet. So when it comes time to choose a seed, choose the one with over a century's worth of seasons under its belt. Because when you're making every season count, you need a seed you can count on.

THE SEED FOR EVERY SEASON

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to fully supplement the deficiency

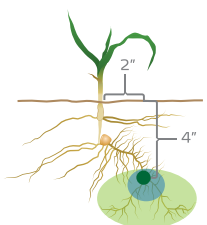
Zn ZINC

Our 3 and 5 Star liquid fertilizers stimulate soil capacity to release nutrients using bases with specific characteristics to limit zinc deficiencies and favour crop development and yield.

As farms have got bigger, liquid starters have been attracting more and more enthusiasts with the arrival of larger seeders equipped for this form of fertilizer which saves valuable time during the short windows available for planting. Developed in Québec, our 3 and 5 Star liquid starters were designed by the same experts who developed the 3 and 5 Star granular starters.

We tested our 5 Star granular starters against our 5 Star liquid starters to measure yield efficiency in corn. The good news is that regardless of the form, both types of fertilizers are equally effective. Therefore, yield is not compromised for producers who wish to work with liquid starters.

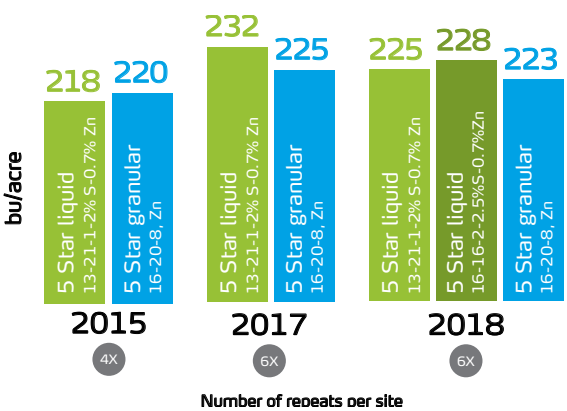
Root difference at V2
In 2X2 placement



5★ 5★

- Site: Saint-Hyacinthe
- Source: R&D Synagri
- Corn at $4.95/bu

5 STAR STARTER
LIQUID vs GRANULAR IN CORN
no significative difference



convincing results in corn

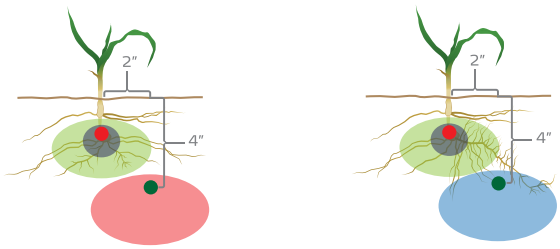
There are two main types of liquid starter products on the market. There is the simple mixture of 32% solution and ammonium polyphosphate (APP), and there is the pop-up at the seed level applied at the same time as the 32% solution in 2x2. These products slow the growth of new roots because the urea it contains promotes the formation of ammonia (NH3), which is contrary to the desired effect of a starter.

Note that the urea contained in the 32% solution has no negative effect on the large well-developed root system of June. In June, this is when the plant needs the 32% solution to draw in nitrogen.

For producers who wish to remain with the application of a pop-up in terms of seed and the 32% solution in 2x2, there is an alternative solution, which is to replace the 32% solution with the **N-POWER BLUE**. Although less efficient than the 5 Star liquid fertilizers, this alternative significantly reduces the negative effect on the roots linked to the 32% solution. By its composition, the **N-POWER BLUE** does not promote the formation of harmful ammonia.

- Site: Saint-Hyacinthe
- Source: R&D Synagri
- Corn at $4.95/bu

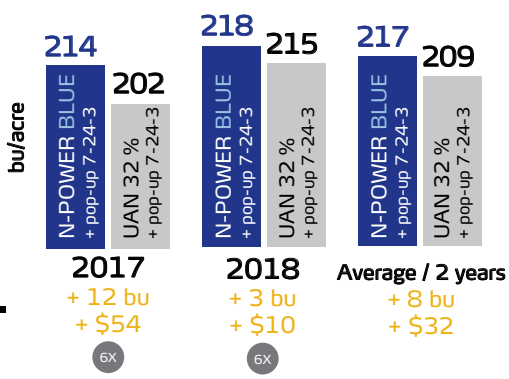
Root difference at V2 In 2X2 placement



UAN 32% + pop-up

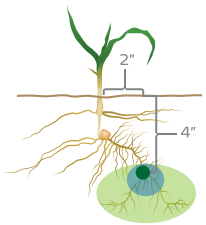
N-POWER BLUE + pop-up

REPLACEMENT OF UAN 32% WITH N-POWER BLUE IN 2X2 + POP-UP

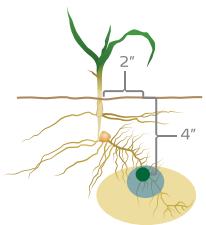


5* liquid Starter with Micronutrients

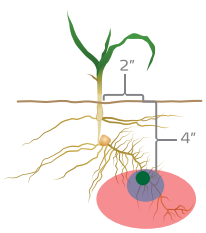
Root difference at V2 In 2X2 placement



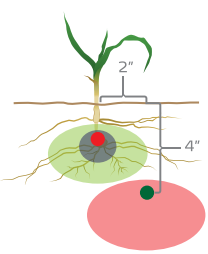
5★



Regular granular :
Base - CAN + DAP

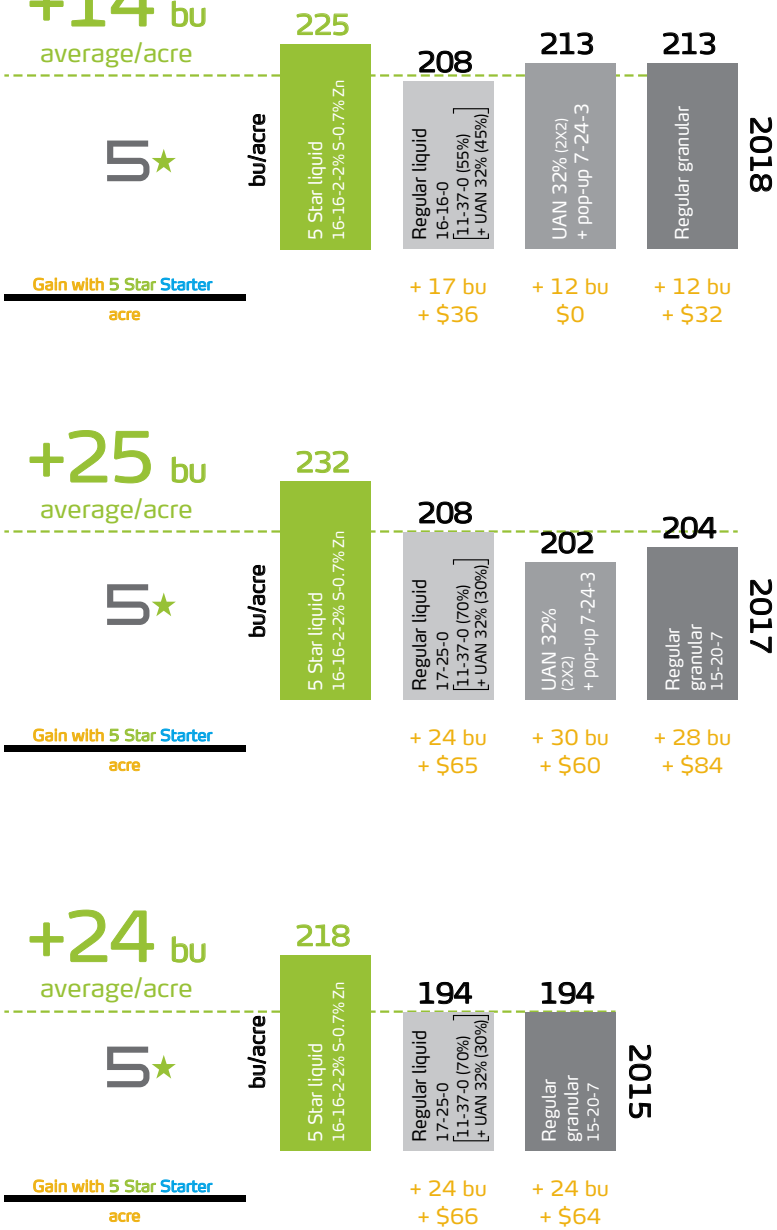


Regular
liquid

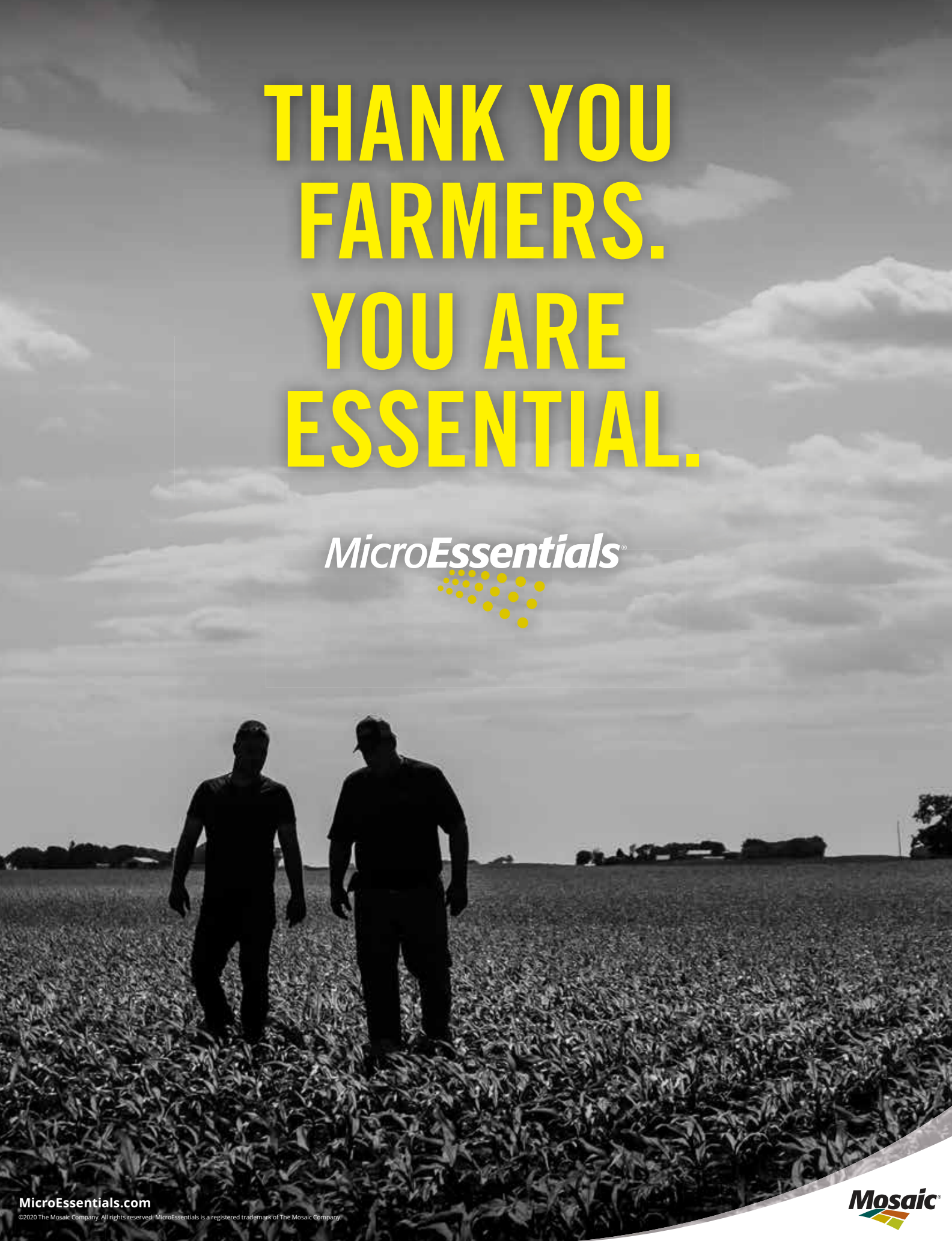


UAN 32%
+ pop-up

5 STAR LIQUID STARTER vs REGULAR LIQUID IN CORN



- Site: Saint-Hyacinthe
- Source: R&D Synagri
- Corn at $4.95/bu
- Breakdown of equipment in 2016, no result



MicroEssentials.com

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Mosaic®

N-POWER BLUE

N:S:B

Nitrogen-Sulfur-Boron Ratio
a unique composition,
it works when it matters most

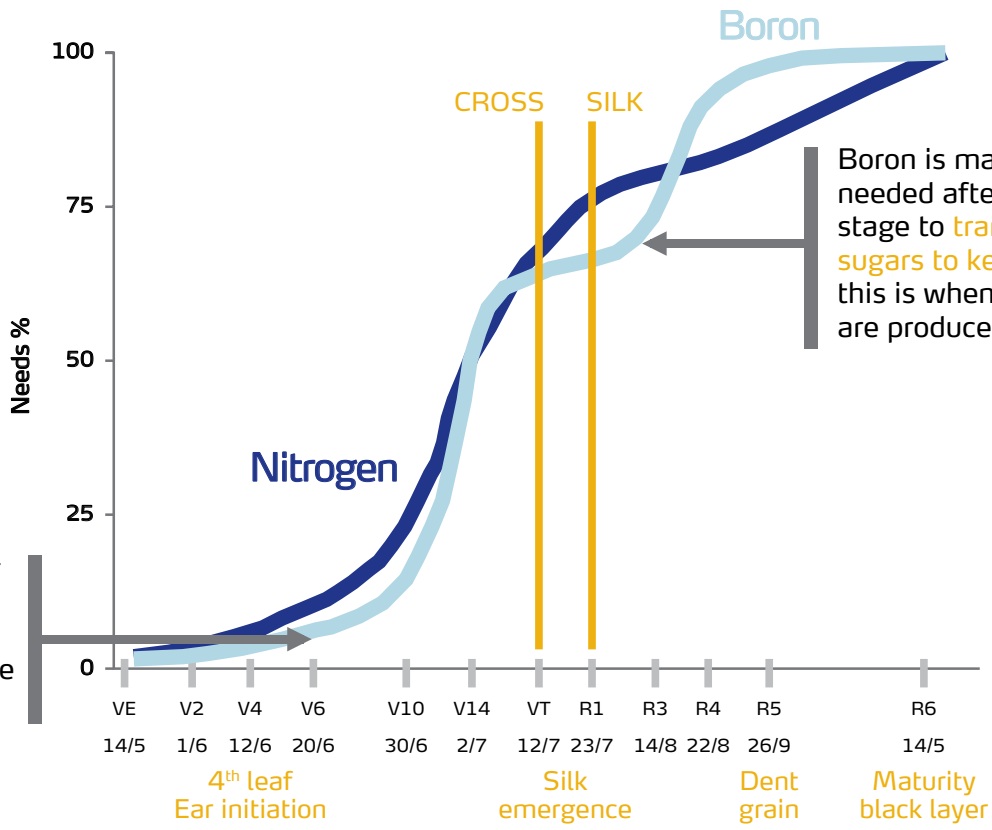
Split application, a crucial step.

Supplement your crop's nutrition by maximizing the benefits of each drop!

N:S:B

N:B

NUTRIENT ELEMENT UPTAKE IN CORN



Boron is mainly needed after R1 stage to transport sugars to kernels, this is when yields are produced.

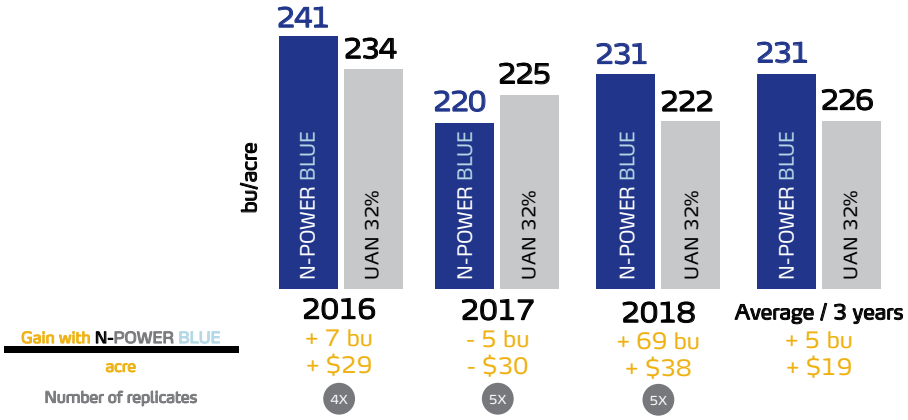
Boron is needed after the V6 stage to promote pollination, thereby ensuring more kernels per ear.

a synergistic composition,
boron and nitrogen are essential

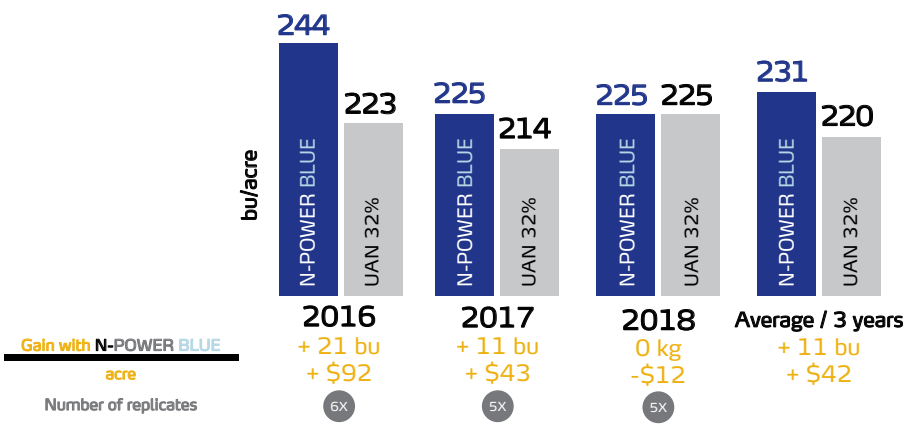
For optimal yields, plants need boron and nitrogen. Boron is an important nutrient, as it is involved in cell division, flower development (pollen viability), synthesis of sugars and proteins and use of water and nitrogen. Therefore, the synergy of these two nutrients makes a difference.

N-POWER BLUE vs UAN 32%
INCORPORATED @ 90 lb/acre NITROGEN AT V6 STAGE

- Site: Saint-Hyacinthe
- Source: R&D Synagri
- Corn at $4.95/bu

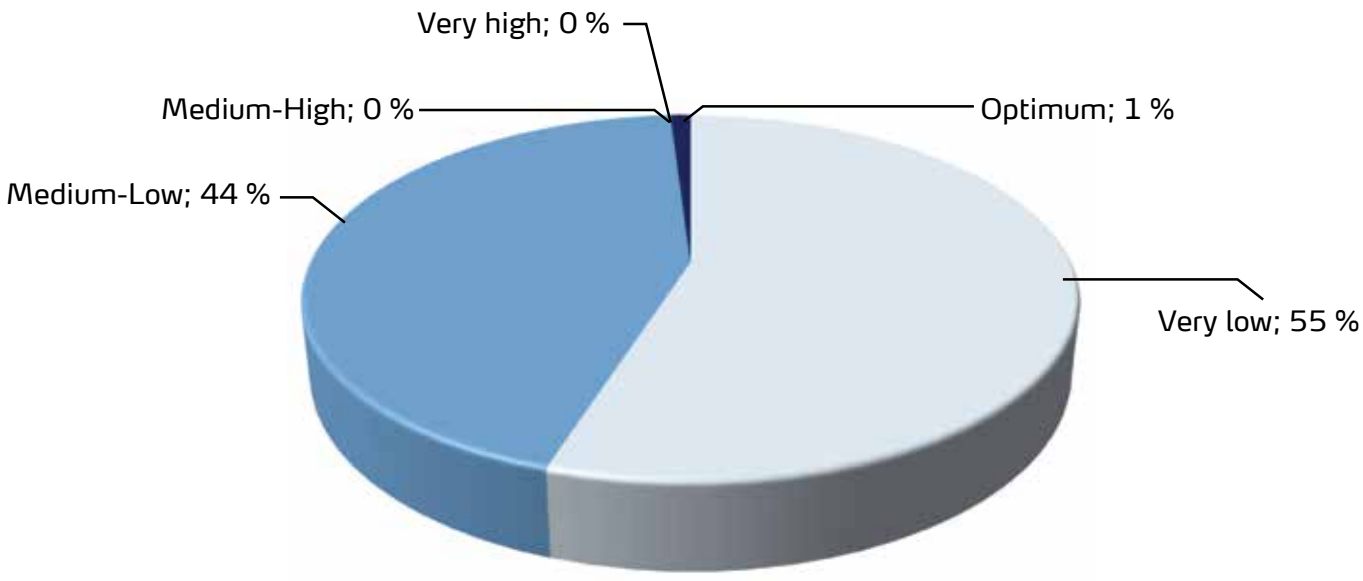


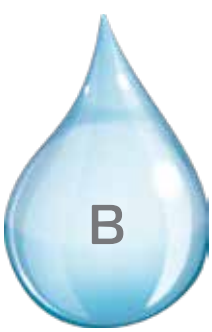
N-POWER BLEU vs UAN 32%
INCORPORATED @ 150 lb/acre NITROGEN AT V6 STAGE



a composition that compensates,
it supplies boron, which is lacking in soil

% OF SOIL SAMPLES ACCORDING TO BORON INDEX CLASS
SYNAGRI

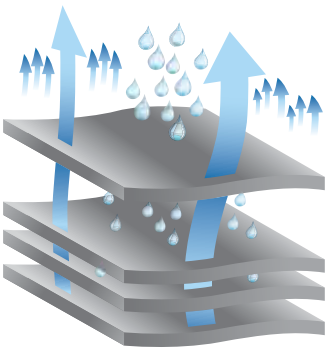




In our soils

- The amount of boron is generally low.
- Boron needs water to penetrate into the roots, but too much water can leach it away.
- Boron has little mobility in plants.
- Input must be consistent to ensure distribution throughout the plant, especially to ears.

a less volatile composition,
when you apply nitrogen without incorporating it



The **N-POWER BLUE** is a unique formula which greatly reduces the risk of nitrogen volatilization. It does not contain any additives that delay nitrogen availability and it achieves higher yields than the UAN 32% treated with a urease inhibitor (NBPT).

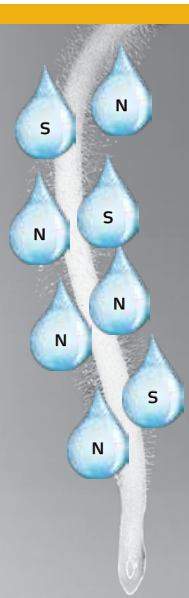
The UAN 32% has a high pH and when applied to soil in contact with residues and organic matter, before or after light rain, a significant amount of nitrogen is likely to volatilize and evaporate into the atmosphere.

a complementary composition,
sulfur and nitrogen are essential

Why?

- Sulfur is needed to metabolize nitrogen in plants. In other words, the absence of sulfur can cause nitrogen deficiency.
- To take full advantage of this synergy, nitrogen and sulfur must be applied at the same time and at the root level in the soil solution surrounding the root hair.
- **N-POWER BLUE** provides this synchronized nitrogen-sulfur availability directly to the right place, in the right amount, where the need is greatest.

Synchronized nitrogen-sulfur availability



YaraVera® AMIDAS™

40-0-0 5.5 (S) Optimal Nitrogen-Sulfur Ratio

ideal in preplant incorporated, a stronger, less volatile, and homogeneous granule to ensure more uniform spreading

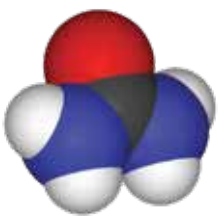
N:S Technologies

YARA

Chemical properties 40-0-0-5.5 (S)

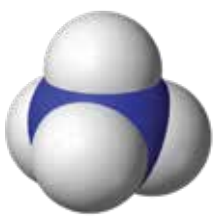
- 40% nitrogen (N)
  - 35% urea (CO(NH2)2) (87% of N)
  - 5% ammonium (NH4+) (13 % of N)
- 5.5% sulfur as sulfate (SO4)-2
- Ratio N:S: 7.3:1
- pH: 5.1

$CO(NH_2)_2$



Urea,
nitrogen form unavailable
to plants
87% total of N

NH_4^+



Ammonium,
nitrogen form available
to plants
13% total of N

$(SO_4)^{-2}$

Sulfate,
sulfur form available
to plants
100% total of S

in the same uniform granule

The YaraVera AMIDAS is not

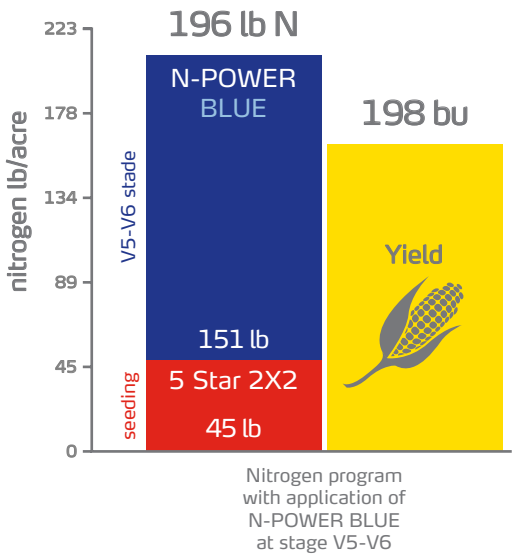
- Urea coated with sulfur
- A mixture of urea and ammonium sulphate
- Slow release urea coated with sulfur

The YaraVera AMIDAS is

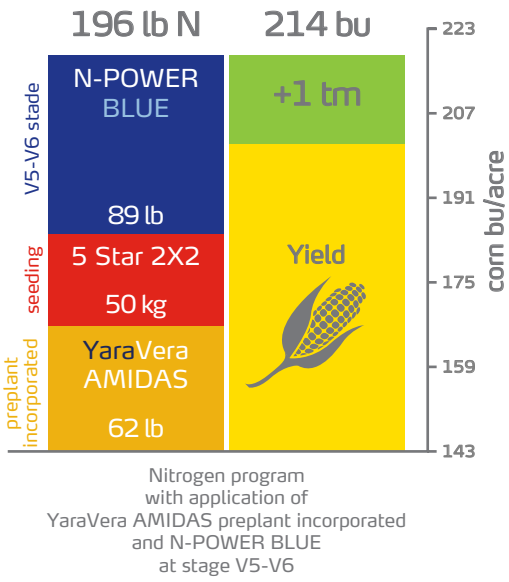
- A granulated fertilizer that is the result of a chemical reaction between urea and ammonium sulphate
- A high nitrogen concentration alternative to ammonium sulphate
- A low volatilization alternative to urea

An optimal program allows the corn plant to have sufficient nitrogen up to the 5-6-leaf stage (collar method), which is the ideal stage where the post-emergence nitrogen (**N-POWER** BLUE or UAN 32% or urea, etc.) takes over. The starter alone does not always ensure nitrogen availability until this critical stage. We must therefore avoid the application of nitrogen prematurely in postemergence, at the 2-3-leaf stage (collar method), as this method has the effect of limiting the availability of nitrogen later when the plant is at the grain filling stage.

2 PROGRAMS COMPARISON OF NITROGEN MANAGEMENT IN CORN



Nitrogen program
with application of
N-POWER BLUE
at stage V5-V6



Nitrogen program
with application of
YaraVera AMIDAS preplant incorporated
and N-POWER BLUE
at stage V5-V6

Same amount of nitrogen, but with fractionation: preplant incorporated, and later in post-emergence instead of applying once everything all at post-emergence.

The result from the trials is a yield increase of 16 bu/acre in 2016, 8 bu/acre in 2017 and 2018.

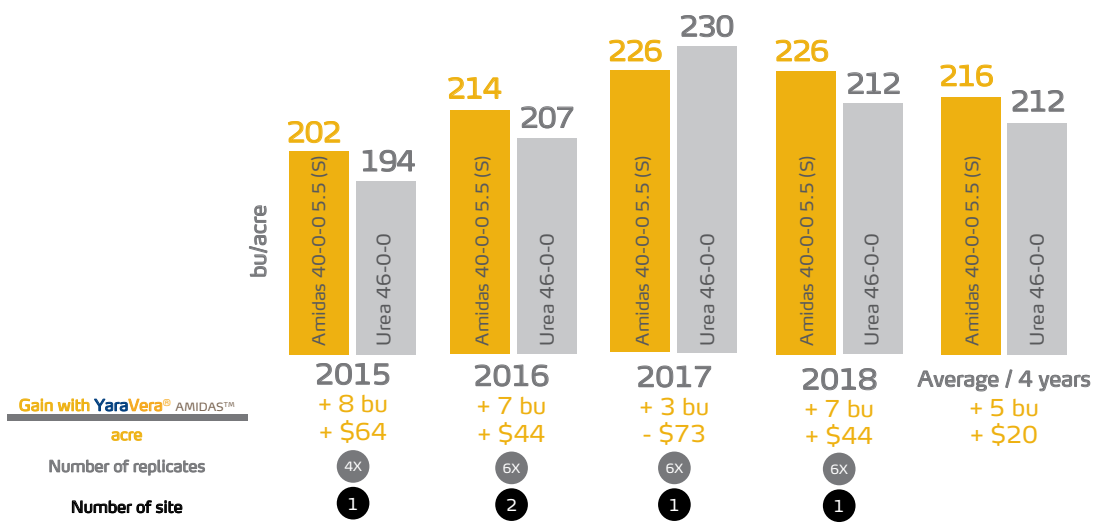
YaraVera® AMIDAS™

ideal in preplant incorporated, combined in the nitrogen of the starter

The composition of YaraVera AMIDAS does not favor the ammoniacal phase (NH_3) which is toxic for small roots in development, as urea does. In other words, unlike urea, with YaraVera AMIDAS 13% of the nitrogen released is in ammonium form which is available immediately.

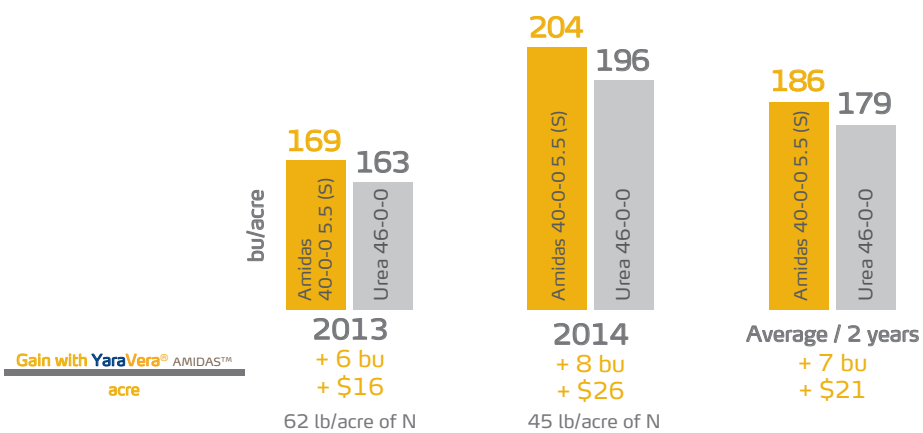
YARAVERA AMIDAS vs UREA IN PRE-SEEDING INCORPORATED @ 62 lb/acre OF NITROGEN

- Site: Saint-Hyacinthe
- Source: R&D Synagri
- Corn at $4.95/bu



YARAVERA AMIDAS vs UREA PEPLANT INCORPORATED IN SIDE BY SIDE

- Site: 2013: Farm in Saint-Hyacinthe
- Site 2014: Farm in Saint-Clet, Qc
- Source: R&D Synagri
- Corn at $4.95/bu



therefore, less dust and greater distribution

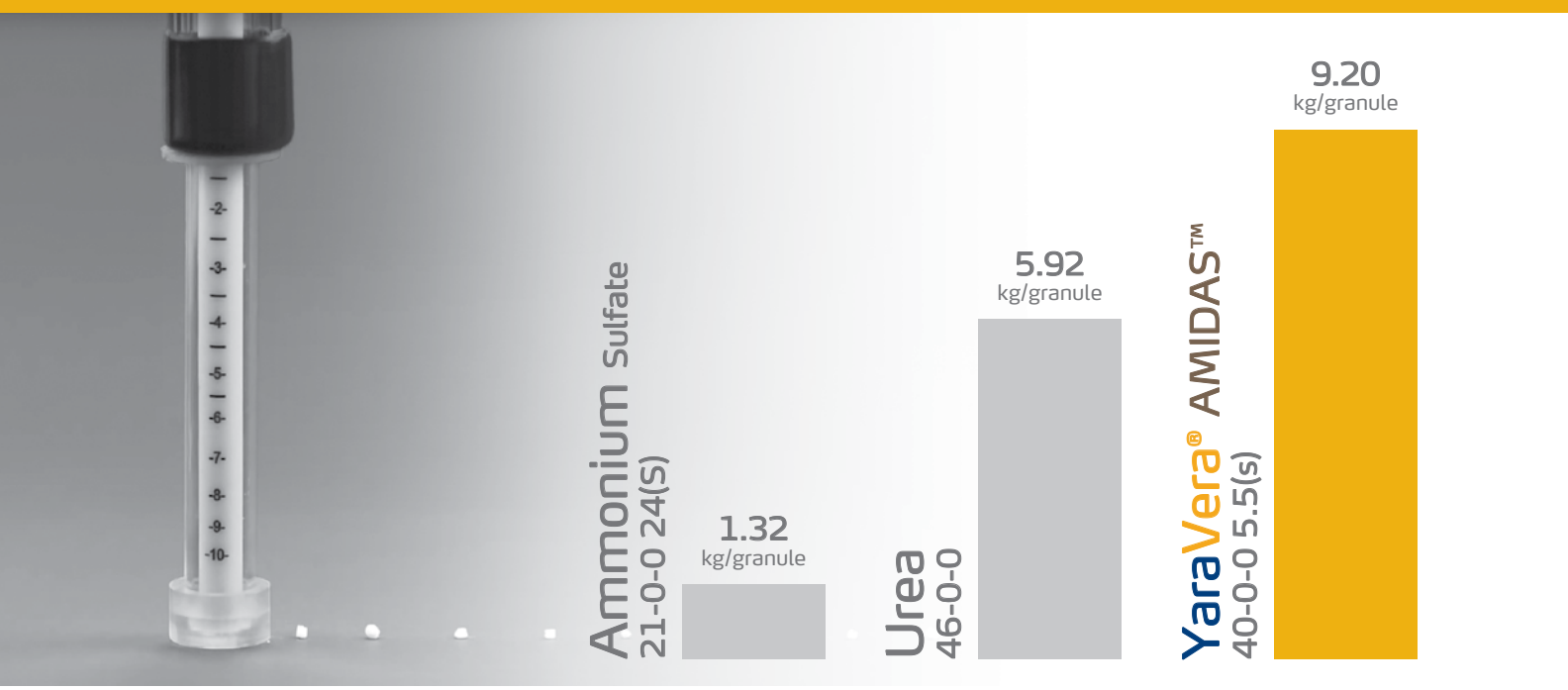
Using a hardness meter, YaraVera AMIDAS 40-0-0 5.5(S) has demonstrated to be stronger (average: 9.20 kg/granule) than granular urea 46-0-0 (average: 5.92 kg/granule) and ammonium sulfate 21-0-0 24(S) (average: 1.32 kg/granule). In addition to the granule hardness, YaraVera AMIDAS offers superior handling due to particle uniformity and its virtually dust-free consistency.

N:S

40-0-0 5.5(S)

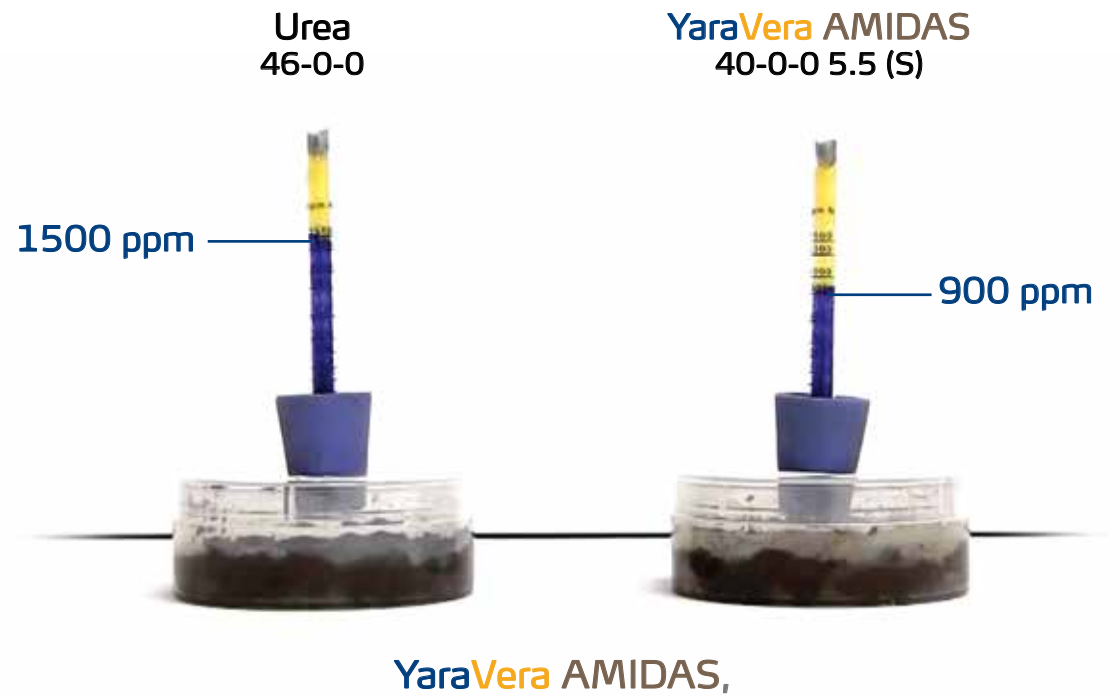
By clicking on this link, see a relative hardness test performed in a laboratory: https://youtu.be/6BpQoWGqlXQ

Relative Hardness Test



YaraVera® AMIDAS™

a less volatile granule, therefore, fewer losses



YaraVera AMIDAS,
40% less volatile than urea

A nitrogen volatilization laboratory test was conducted to compare YaraVera AMIDAS 40-0-0 5.5(S) vs Urea 46-0-0.

You will see in this 2 minutes video (24h time-lapse), how YaraVera AMIDAS is less volatile (40% less volatile) than urea: https://youtu.be/JJI0QZrarYI

YaraVera AMIDAS is unique because of its production process. Urea liquor and ammonium sulfate are combined during the manufacturing process to create a homogeneous granule. It is a truly homogeneous product that ensures uniform application. The ammonium nitrogen and sulfate sulfur are immediately available to plants. YaraVera AMIDAS's N:S ratio of 7.3:1 is ideal for most crops.

N:S

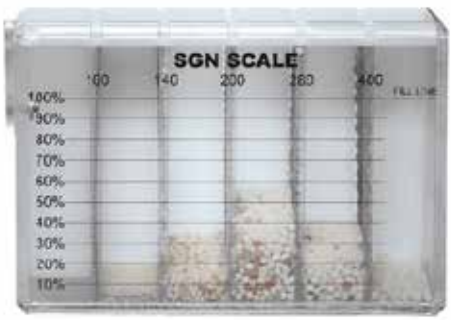
40-0-0 5.5(S)

YaraVera® AMIDAS™

an homogeneous granule, therefore, uniform spreading

Classic Blends

Physical blend of urea and ammonium sulfate, granular segregation



YaraVera AMIDAS

Blend of urea and ammonium sulfate, in the same granule, no segregation

YaraVera AMIDAS homogeneous composition of urea and ammonium sulfate will not segregate. The physical blend of urea and ammonium sulfate does. Note the ammonium sulfate (brown) concentration in the 1.4 mm to 2.8 mm size fractions in classic blends.

YaraVera® AMIDAS™

ensure uniform spreading, therefore, no deficiency or overdosing

The spreading width of small light particles is less than that of a larger heavier particle in a blended mixture.

Striped fields from poor spreading patterns can cause yield loss due to:

- nutrient deficiency
- nutrient overdose
  - lodging
  - quality loss

Uneven nutrient application causes striped fields and reduced yields

Uneven nutrient application causes striped fields and reduced yields

Products with the GMO-free label are gaining momentum in the consumer market. Many consumers, whether from Asia, Europe or America, want to know the origin, the traceability of products containing GMOs. At Synagri, we have a full portfolio of GMO-free products, including soybeans, corn, grains and fodder plants.

SOYBEANS

SYNAGRI has been offering a very beautiful range of conventional SOYHINOVA soybeans for several years, GMO-free soybeans. This range covers thermal units ranging from 2,500 to 2,900.

Since last fall, Belcan soybeans have also been added to this range of products.

CORN

SYNAGRI, through its partner Horizon Seeds will offer several of the Local Seeds hybrids, but the production of these will be done in Ontario, in addition to offering its range of conventional corn. These different corn hybrids are evaluated at the SYNAGRI Research farm as well as by different growers in Quebec and Ontario. These non-GMO hybrids respond very well under our conditions.

All seed lots undergo PCR analysis (% GMO) by an accredited laboratory. The results are provided before delivery of the seeds to all producers who request them. It's a great way to make sure that future buyers' standards are met, because it all starts with the seed.

FERTILIZATION OF FORAGE PLANTS

Starters

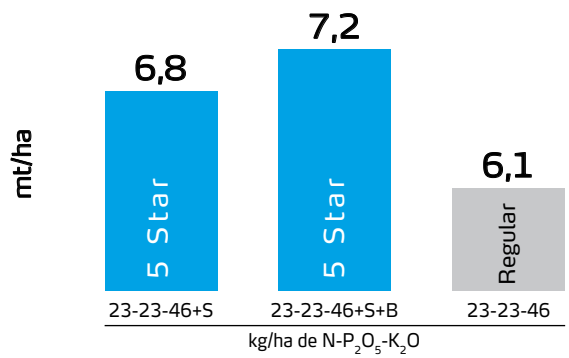
The composition of solid and liquid manures does not match the needs of forage plants. The use of synthetic fertilizers is necessary to maintain soil fertility and balance, and to provide forage plants with all the essential nutrients to obtain high yields and quality. The starter is essential to the success of this crop. Indeed, as a plant is already established, it has an early need for nutrients in the spring, but the soil is cold and wet, and therefore has a low capacity to provide nutrients.

Nitrogen Fertilization of Forage Plants

A good fertilization plan must integrate the withdrawal and exports from plants such as potassium, phosphorus, boron, sulphur, etc. but also provide the nitrogen necessary to reach yield objectives. As the forage plants' needs in nitrogen are high, efficient management is essential. The application of fertilizers after each cut makes up for the withdrawal and exports, and makes it possible to quickly restart the production cycle of the plant.

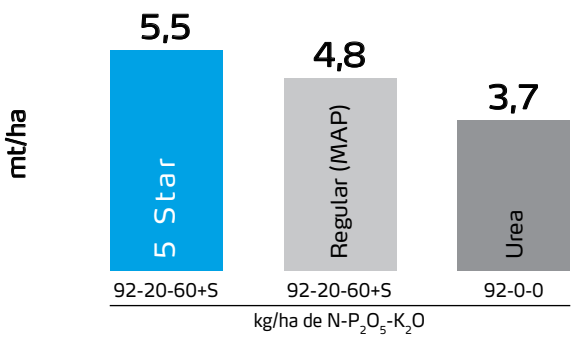
Several starter fertilization tests have been carried out over the past few years and it is very rewarding to see a reliable higher level of profitability with a Premium starter.

ALFALFA FERTILIZATION TESTS IN THE ESTRIE REGION, 2010. YIELD (KG/HA) AT THE 2ND CUT



Input after 1 application (after the 1st cut)

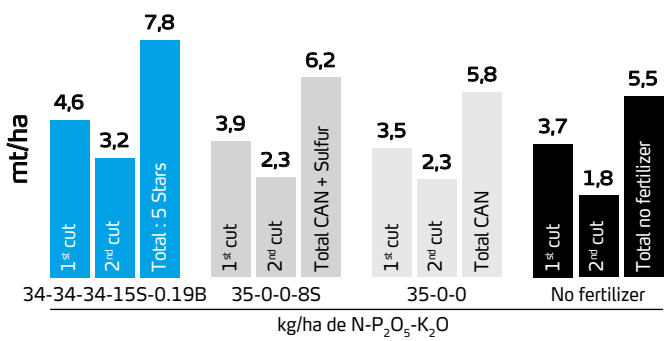
GRASS FERTILIZATION TESTS IN THE ESTRIE REGION, 2008. YIELD (KG/HA) AT THE 2ND CUT



Input after 2 applications (in the spring and after the 1st cut)

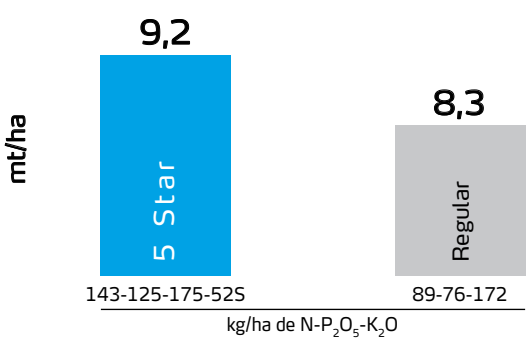
FERTILIZATION TESTS ON A 60% GRASS AND 40% LEGUMES (CLOVER) PRAIRIE, LAC-SAINT-JEAN, 2014 AND 2015

Yields (MT/ha) according to the treatments



Input of a spring application

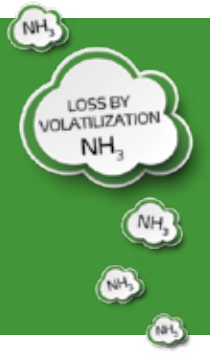
PROGRAM COMPARISONS (5* VS. REGULAR). TOTAL YIELDS AFTER FOUR CUTS IN SAINT-ALBERT, 2016.



Input after 3 applications (after 3 cuts)

NITROGEN FOR FORAGE PLANTS

Good fertilization management should follow the 4R concept: the right product, in the right amount, in the right area and the right quantity. The **right source of nitrogen** must be considered. As the forage plants' needs in nitrogen are high, efficient management is essential.



The use of urea and the 32% nitrogen solution should be avoided because a large part of the nitrogen can volatilize. Only the application of these two sources of nitrogen before a rain of at least 25 mm (1 in) prevents volatilization (Source: Ammonia volatilization from urea, David E. Kissel, University of Georgia). The application of urea and the 32% nitrogen solution, before a light rain or on damp soil after a rain, can lead to volatilization losses of up to 65%, and 35% of the total nitrogen supplied (Sources: Émissions d'ammoniac [NH3] par les sols agricoles [NH3 emissions from agricultural soil], Dr. Philippe Rochette, Agriculture and Agri-Food Canada, and Ontario Ministry of Agriculture, Food and Rural Affairs)

YaraBela® AXAN 27-0-0-3.75 (S)

- 27% nitrogen (N)
  - 13.5% ammonium (NH_4^+) (50 % of N)
  - 13.5% nitrate (NO_3^-) (50 % of N)
- 3.75% sulphur in the form of sulphate $(SO_4)^{-2}$
- Ratio N:S :7.2:1
- 5.7% calcium
- pH 6.1

AXAN is the best source of granular nitrogen. It is composed of 50% ammonium and 50% nitrate. **AXAN** is the result of a chemical reaction between ammonium nitrate and gypsum. It provides sulphur in an ideal nitrogen:sulphur ratio of 7:1, which helps increase the protein level in forage plants.

Alternatives to Urea and 32% Liquid Nitrogen

YaraVera® AMIDAS™ 40-0-0-5.5 (S)

- 40 % nitrogen (N)
  - 35 % urea ($CO(NH_2)_2$) (87 % of N)
  - 5 % ammonium (NH_4^+) (13 % of N)
- 5.5 % sulphur in the form of sulphate $(SO_4)^{-2}$
- Ratio N:S :7.3:1
- 5.7 % calcium
- pH 5.1

AMIDAS is the best source of granular nitrogen to replace urea, as it is composed of 87% urea and 13% of immediately assimilable ammonium. **AMIDAS** is the result of a chemical reaction between urea and ammonium sulfate. It provides sulphur in an ideal nitrogen: sulphur ratio of 7:1, which helps increase the protein level in forage plants.

N-POWER BLUE

The different formulations of **N-POWER BLUE** are the best source of liquid nitrogen to replace the 32% nitrogen solution. They are made up of urea, ammonium and nitrates. The **N-POWER BLUE** provides boron which is particularly important in alfalfa production.

The Most Efficient Source of Boron for Granular Fertilizers

Boron is essential in the fertilization of forage plants. Impregnation of fertilizers with Mycrosyn Yara Procote Bore completes the fertilization program very effectively because boron is found on each granule of fertilizer, promoting better absorption by the roots.

LIQUID STARTER IN WHEAT

The 7-24-3*** formula applied according to the recommendation of 47 L/ha (5 US gal/ac) in wheat and positioned close to the seed (pop-up) produced excellent results with net gains of $77/ha and $25/ha.

The purpose of a liquid starter like the 7-24-3 (5*) is to stimulate plant growth early on to help the roots establish quickly. The keys to the starter's efficiency are its high phosphorus availability and its speed of absorption. An optimal N:P ratio is also an important point factor to consider when choosing a starter.

The best ratio to maximize phosphorus absorption is 1 part nitrogen to 3 parts phosphorus. The further away from the 1:3 ratio, the slower the phosphorus assimilation. Synagri's 7-24-3 (5*) Starter is an excellent product with the correct N:P ratio and acidic properties with a pH of 6. This is very important, as non-acidic starters promote the presence of ammonia which is harmful to young developing seedlings.

The 7-24-3 (5*) also contains zinc and boron, which are very useful given the limited availability in cold Québec soils when sowing. In addition, 54% of the soils in Québec are lacking in zinc and 87% in boron, of which 51% are very poor.
Adding these two minor elements promotes root development.

Chemical Analysis of the 7-24-3 (5*)

7% N – 24% P_2O_5 – 3% K_2O – 2% S – 0.5% Zn – 0.06% B

To be effective, this liquid starter must be applied near the seed, which is called pop-up placement. Phosphorus migrates very little in the soil. Therefore, if it is applied too far from the root, it will not be assimilated. Dosage is important to maximize results.

Recommended doses of 7-24-3 (5*)*

	Sandy soils	Clay soils
With pop-up placement:	37 L/ha (4 US gal/ac)	47 L/ha (5 US gal/ac)

Input

kg/ha (for 37 l/ha) : 3.3 N – 11.8 P_2O_5 – 1.5 K_2O – 0.037 B – 0.26 Zn
kg/ha (for 47 l/ha) : 4.2 N – 15.0 P_2O_5 – 1.9 K_2O – 0.047 B – 0.33 Zn

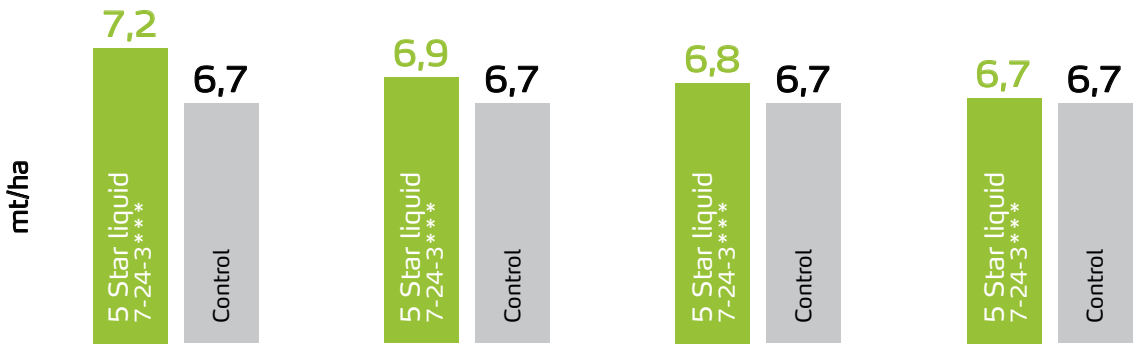
In light soils where conditions may promote earlier and faster root development, the rates should be lower than in heavier soils to avoid root damage.

We carried out tests with 7-24-3 (5*) two years in a row in order to determine the financial profitability, and compared the results with a control (without the starter). The tests were held in a clay soil. Three doses were compared with the control (without the starter):

- 47 L/ha (5 US gal/ac) – **Recommended dose**
  To facilitate application during sowing, the content has been diluted at a ratio of 50% pop-up and 50% water, and the mixture was applied at 10 US gal/ac.
- 94 L/ha (10 US gal/ac) – **Twice the recommended dose**
  Two types of application for this dose:
  1- Content diluted at 50% pop-up and 50% water and applied at 20 US gal/ac.
  2- Applied undiluted at 10 US gal/ac.
- 188 L/ha (20 US gal/ac) – **Four times the recommended dose**
  Applied undiluted at 20 US gal/ac.

LIQUID STARTER IN WHEAT

LIQUID STARTER TESTS WITH 7-24-3 (5)* APPLIED IN POP-UP PLACEMENT (NEAR THE SEED) 2018



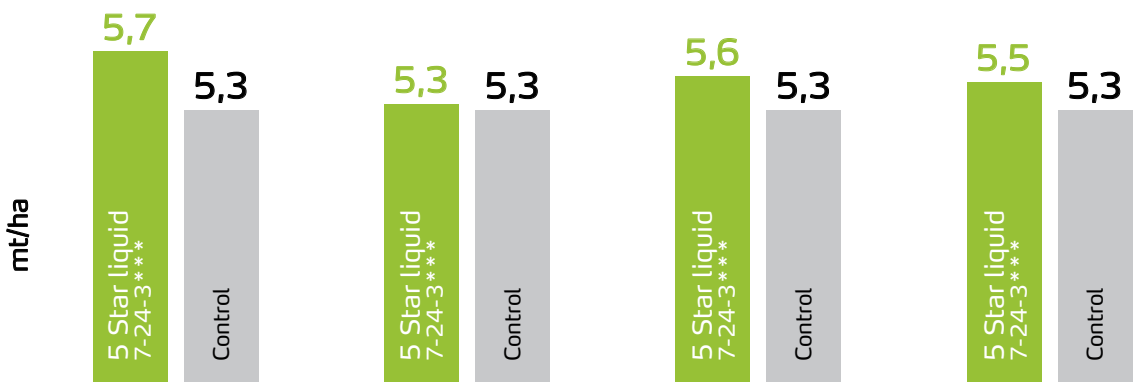
47 L/ha
(5 US gal/ac)
50 % diluted
+550 kg
Cost : $66/ha
+$77

94 L/ha
(10 US gal/ac)
50 % diluted
+175 kg
Cost : $132 /ha
-$87

94 L/ha
(10 US gal/ac)
Applied undiluted
+156 kg
Cost : $132/ha
-$92

188 L/ha
(20 US gal/ac)
Applied undiluted
+88 kg
Cost : $264/ha
-$242

LIQUID STARTER TESTS WITH 7-24-3 (5)* APPLIED IN POP-UP PLACEMENT (NEAR THE SEED) 2019



47 L/ha
(5 US gal/ac)
50 % diluted
+378 kg
Cost : $66/ha
+$25

94 L/ha
(10 US gal/ac)
50 % diluted
+42 kg
Cost : $132/ha
-$122

94 L/ha
(10 US gal/ac)
Applied undiluted
+298 kg
Cost : $132/ha
-$61

188 L/ha
(20 US gal/ac)
Applied undiluted
+215 kg
Cost : $264/ha
-$213

YaraVera® AXAN 40-0-0-5.5 (S)
YaraBela® AMIDAS™ 27-0-0-3.75 (S)

Through dozens of tests carried out over three years, we have compared the financial profitability of several doses of nitrogen in wheat. You can clearly see in the graphs below that the higher the nitrogen dose, the higher the yields. The challenge is to determine at which nitrogen dose it is no longer profitable to add more.

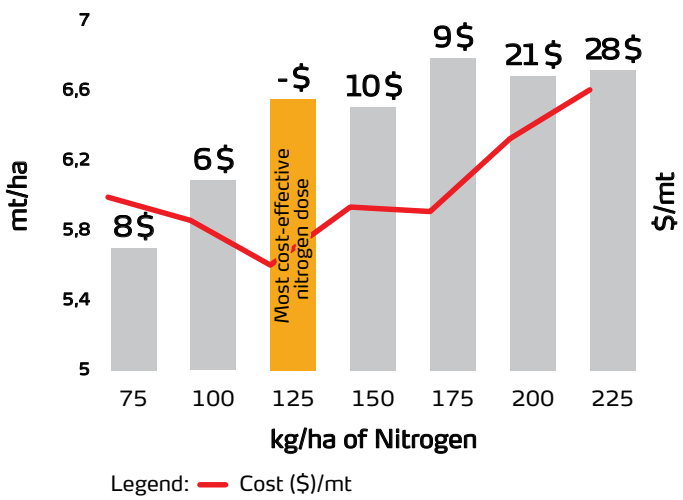
We were able to measure that the most profitable nitrogen dose levels are as follows:

Presidio wheat: 125 to 140 kg/ha. With more intensive management, 150 kg/ha is ideal.
AAC Synox wheat: 110 to 130 kg/ha. With more intensive management, 150 kg/ha is ideal.

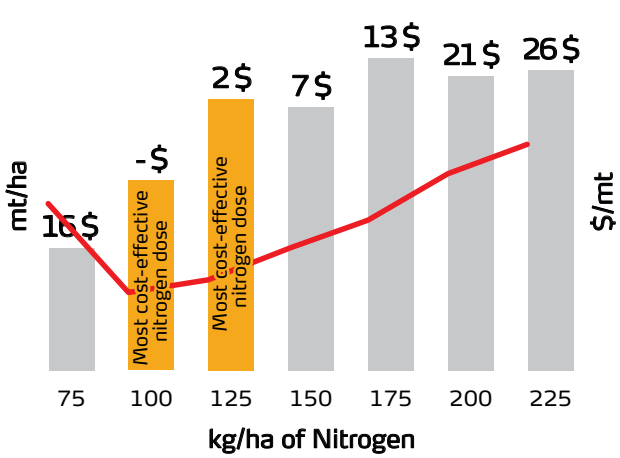
In fields with a lower yield potential, doses of 100 kg/ha are more suitable.

The methodology consisted of using the wheat production budget of CRAAQ (Beauregard) to consider all factors that can influence the cost of production per tonne of wheat (inputs, machinery, drying, transport, etc.). This allowed us to take into account not only the cost of nitrogen itself, but also additional transportation and storage costs as yield increases. We calculated the production cost per tonne of wheat for each dose of nitrogen with the yield obtained in our tests. In the graph, the most cost-effective dose corresponds to the performance indicated by the green column. The amounts ($) in each blue column indicate the additional cost to produce a tonne of wheat with other doses of nitrogen.

PRESIDIO – NITROGEN LEVEL
DIFFERENCE OF COST/MT VS. THE LOWEST



AAC SYNOX – NITROGEN LEVEL
DIFFERENCE OF COST/MT VS. THE LOWEST



Ideally, applications should be done as follows:

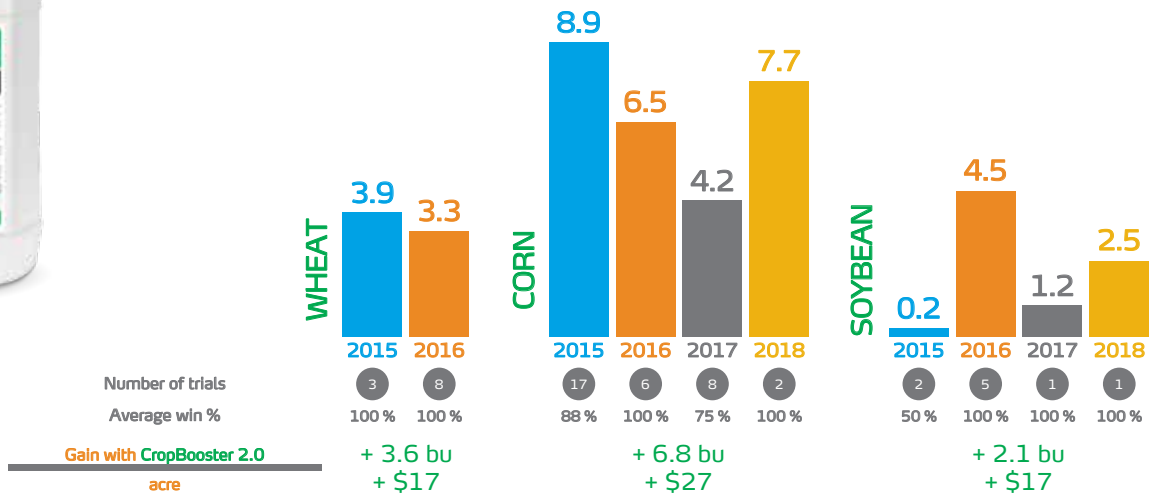
- 50 to 60 kg/ha of incorporated nitrogen in preplant (with YaraVera® AMIDAS™)
- 55 to 90 kg/ha of nitrogen at Z29 (with YaraBela® AXAN end tillering – beginning of stem elongation)
- Nitrogen can also be fractionated by reducing by 25 kg/ha the dose at Z29, which will be added at Z39 (end of stem elongation, before boot stage) to improve protein level.

CropBooster® 2.0

15-3-6 + MICRONUTRIENTS (S, B, Mn, Mo, Zn)

Based on the well known foliar biostimulant CropBooster™, Axter Agroscience has developed CropBooster 2.0, a even better biostimulant. CropBooster 2.0, which now includes the 2.0 Technology, will help crops overcome abiotic stresses like those caused by the use of herbicides. Tested on wheat, corn and soybeans, CropBooster 2.0 increased yields by 3.9 bu/acre, while showing an average win percentage of 90%.

YIELD INCREASE (BU/ACRE) IN 53 TRIALS BETWEEN 2015 AND 2016

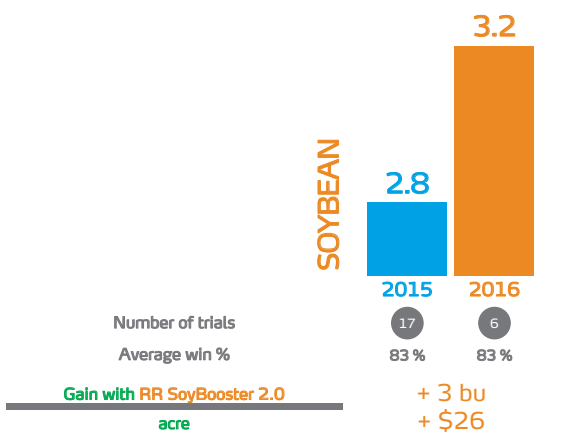


RR SoyBooster® 2.0

6-18-6 + MICRONUTRIENTS (S, B, Co, Mn, Mo, Zn)

Based on the well known foliar biostimulant RR SoyBooster™, Axter Agroscience has developed RR SoyBooster 2.0, a even better biostimulant. RR SoyBooster 2.0, which now includes the 2.0 Technology, will help soybeans overcome abiotic stresses like those caused by the use of herbicides, allowing for better yields (3 bu/acre) and a better win percentage (83%). This yield increase is more than sufficient to pay for the product as the following graph will show.

YIELD INCREASE (BU/ACRE) IN 23 TRIALS BETWEEN 2015 AND 2016



Consult your representative to discuss the benefits for your crops.

a highly recommended approach

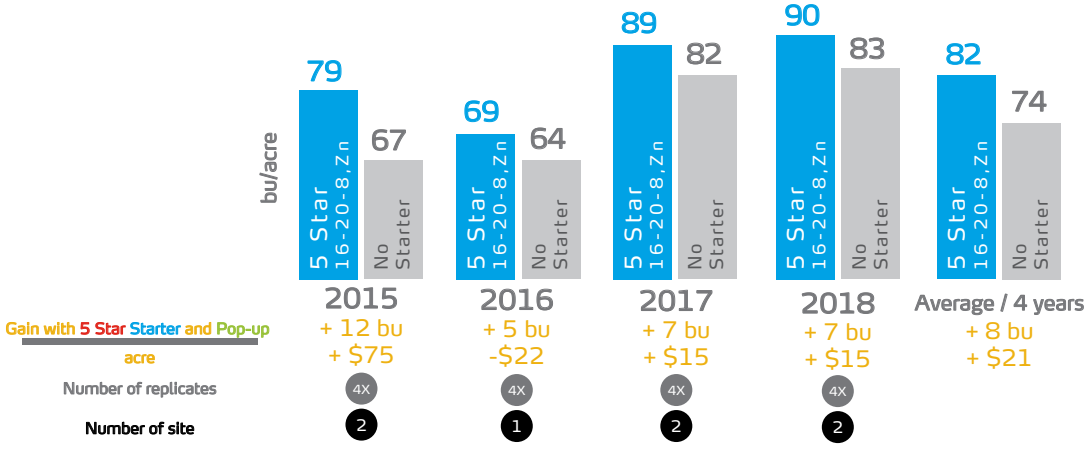
N NITROGEN

P PHOSPHORUS

It is recognized that the probability of maximizing soybean yields increases with early planting. This practice strongly encourages the use of a starter that promotes a quicker start of the plant under less hot soil conditions than a late seeding. A starter containing phosphorus and some nitrogen is beneficial because these two nutrients promote the early development of the roots which in turn stimulates the development of the nodules and the fixation of nitrogen.

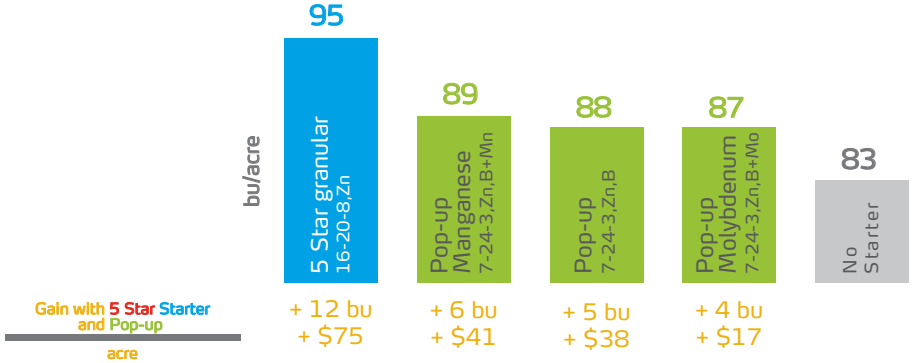
Nitrogen in the starter promotes root development, not to take over the nodules, nor hinder their development, on the contrary. The faster the root system develops, the faster the leaves can become photosynthesized thanks to the contribution of fertilizing elements. Well-developed leaves that can therefore provide sugar to the nodules that in turn provide nitrogen to the plant and so on. Yields are maximized when the nodules are able to supply nitrogen quickly and in greater quantity to the plant.

5 STAR GRANULAR STARTER WITH MYCROSYN TECHNOLOGY vs NO STARTER



- Site: Saint-Hyacinthe
- Source: R&D Synagri
- Soybean at $12.25/bu

5 STAR GRANULAR STARTER vs POP-UP vs NONE 2018



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Stéphane

Stéphane Gagnon, agr.
Precision Ag Manager
stephane.gagnon@synagri.ca

PRECISION AG

Precision agriculture is a farmland management principle which aims for the optimization of yields and investments according to the environmental variabilities. The ultimate objective is to increase yield with the same surface of land: less pesticides, less fertilizers, less seeds, less fuel, and less hours of labour to obtain the same harvest.

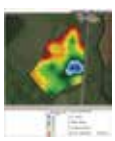
We are experts who can help you improve your land's profitability.

Contact your Synagri representative for more information on our services.

GPS Soil Analyses
Wintex hydraulic probe
Standard 6-inch sample depth

GeoSoil LABORATORY
property of Synagri

Soil Analyses
Comprehensive and easy-to-understand analysis report



Georeferenced Mapping
Comprehensive visual report of the state of field fertility

Recommendations for Lime and Variable-Rate Fertilizers

Recommendations for Nitrogen and Variable-Rate Seedling

CLIMATE FIELD VIEW

Digital Farming Management Platform
Agronomic management of your fields with our representatives and experts in digital agriculture

PRECISION AGRICULTURE

GPS soil analysis is the first step to improving the **yield** of your **fields** in a **profitable** way.

Contact your Synagri **representative** to find out more about our **advantageous financing programs**:

2019 Fall **GPS Soil** and **Potash Analyses**

GeoSoil LABORATORY
property of Synagri

Synagri GPS Soil Analyses

Give the soil its full potential back

The right product
The right dosage
The right location
The right time

GPS Soil Analyses

GPS soil analyses (GPSSA) help you determine the level of fertility in all areas of the field, as different as they may be.

Soils: A Vital Asset

After several years, the soils need to replenish their nutrient provisions. Some areas of the fields may be rich while others are deficient in nutrients for crop growth.

The Key Is Soil Fertility

Maintaining soil fertility is one of the most effective ways to sustainably preserve this asset. The best strategy is to increase and maintain nutrients to an optimal level.

Fertility Correction

With GPSSA, it is possible to administer the right dosage of the right product in the right area to maintain or increase soil fertility by creating variable-rate application files. In other words: no waste.

Performing soil analysis combined with precision agriculture,

it's giving ourselves the means to our ambitions for more agriculture

1 sample/hectare

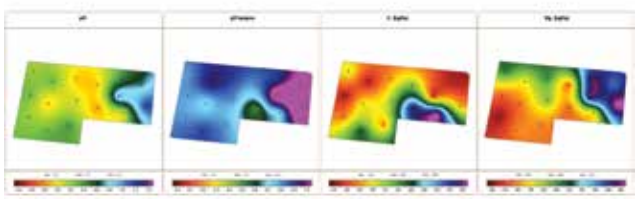
=

A mixture of
8 soil core samples

Analysis results generated by

GeoSoil LABORATORY

property of Synagri



Soil analyses that offers the following:

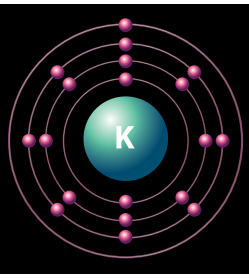
ISO 17025 Accreditation

- Significant and impartial results
- Results presented in comprehensive reports and easy to understand to help you taking the best decisions

Le potassium

Potassium is one of the most important nutrients.

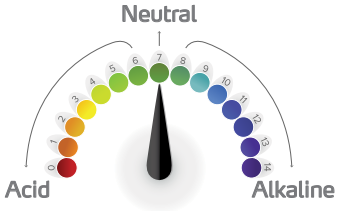
However, over 75% of soils in Québec and Eastern Ontario (similar %) have a potassium deficiency.



PH and Lime

One of the determining factors of soil yield is its pH.

Over 50% of soils in Québec and Eastern Ontario (similar %) need lime to restore their optimal pH levels.



GPS soil analysis measures the fertility of each hectare.

The standard soil test measures the average fertility of the field.

Variable-Rate Application

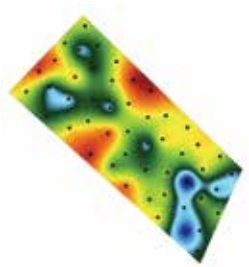
The elimination of the wasting of lime, potassium and nitrogen mostly offsets the cost of a GPS soil analysis. The potential gain in yield becomes a bonus and provides a higher return on your investment.

Fixed-Rate Application

The high variability of the soil in the fields means that, when using a fixed rate, about 10% to 15% of the surface receives the right dose. The rest is wasted or applied in too small a quantity to be effective.

Without Precision Farming, We Definitely Apply **Way Too Little**, or **Way Too Much**

The right dosage in the right area of a field



Mixed colours = various optimal dosages

Variable rate

- Respects the variability of the fertility across the field.
- Quantifies the actual needs in order to adjust elements according to the potential of each soil type.
- Allows farmers to make field interventions that are economically, agronomically and environmentally sustainable.

Versus a fixed-rate dosage in a field

Medium green = average dosage

Too little

- In the dark green and blue areas (seen above), not enough lime was applied.
- Therefore, the target pH will not be reached.
- This method does not allow farmers to make field interventions that are economically, agronomically and environmentally sustainable.

Too much

- In the yellow and orange zones (seen above), too much lime was applied.
- Therefore, the target pH will be exceeded.
- This method does not allow farmers to make field interventions that are economically, agronomically and environmentally sustainable.

Return on Investment

Monitoring Average Soil Fertility Over 7 Years

Following GPS Soil Sampling

	pH	Level of K	Fertility index
Having made the recommended variable-rate adjustments	Increase of 18%	Increase of 61%	Increase of 8%
Not having made the recommended variable-rate adjustments	Decrease of 16%	Decrease of 26%	Decrease of 6%

For information purposes

Estimates are based on data collected on over 2,500 hectares in the last 7 years.

Variable-Rate Application

Impact on Revenue

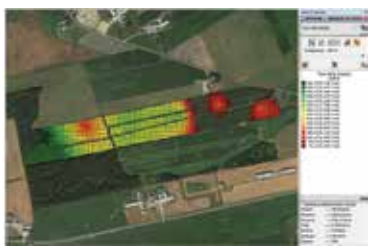
Following GPS Soil Sampling and Associated Fertility Adjustments

	Example	Average yield increase		Additional cumulative revenue	Investments	Net return
	Start	Per year	Yield after 5 years	After 5 years	After 5 years	After 5 years
Corn	10 MT/ha	+ 4%	11.7 MT/ha	$833 /ha	$406 /ha	+ $427 /ha
Soy	2.5 MT/ha	+ 6%	3.2 MT/ha	$717 /ha	$406 /ha	+ $311 /ha

For information purposes

- Corn price set at $200/MT; soy price set at $450/MT
- The investments include a variable-rate lime application and two variable-rate potash applications. The cost of georeferenced soil analysis is also included.
- Calculations and estimates of performance, income and cost increase are estimated from data collected on over 2,500 hectares over the last 7 years.

Examples from 2018



Montérégie, Qc /19.1 ha

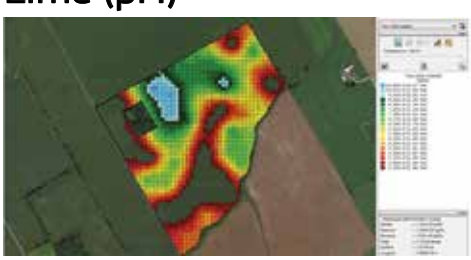
Potassium

% of the field area receiving the right amount of potash	2%
% of the field area receiving too much potash	41%
% of the field area not receiving enough potash	57%

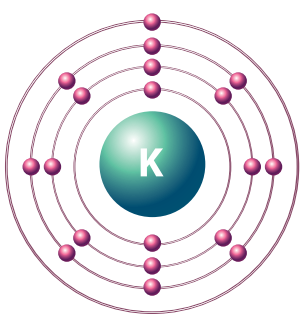
Effect if these fields had received a fixed-rate application

13%	% of the field area receiving the right amount of lime
65%	% of the field area receiving too much lime
22%	% of the field area not receiving enough lime

Lime (pH)



Eastern Ontario / 41.2 ha



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