2026-2027
CATALOG

CROP GUIDE
2026-2027

masseeds®
ACT TOGETHER FOR A CHANGING AGRICULTURE

Content

COMMITTED TO CSR ISO 26000 Exemplary ★★★ AFNOR CERTIFICATION

AFNOR Certification attests having assessed the contribution to sustainable development according to ISO 26000 within GROUPE COOPERATIF MAISADOUR.

Visit masseeds.com website

Act together for a changing agriculture

WHY MUST AGRICULTURE EVOLVE?

For more than twenty years, yields have stagnated across many major agricultural regions worldwide. Despite technological progress, this trend highlights the limits of our current model and raises questions about its long-term sustainability.

The causes are now clearly identified:

- 1/3 climate change.
- 1/3 carbon loss – decrease in organic matter levels.
- 1/3 degraded ecosystem.

These changes weaken soil's structure and fertility, reduce their water-holding capacity, and make crops more vulnerable to climate-related risks. The reduction in organic matter also increases farmers' dependence on synthetic fertilizers, whose costs continue to rise.

ACCELERATING THE AGRICULTURAL TRANSITION

Transforming our agricultural and food model has become essential to secure the long-term viability of farms, preserve natural resources, and maintain economic performance. This transition must also help livestock farmers safeguard their margins in an increasingly uncertain environment.

This is the purpose that drives MAS Seeds®: **ACT TOGETHER FOR A CHANGING AGRICULTURE**

ACT TOGETHER FOR A CHANGING AGRICULTURE

We are committed to supporting farmers as they face four major challenges:

1. Regenerating soils and managing carbon.
2. Strengthening resilience to climate change.
3. Enhancing biodiversity and agroecosystems.
4. Improving protein and feed autonomy for livestock farmers.

Our mission: to provide innovative and sustainable seed portfolio, along with agronomic services, to secure the profitability and future of farming operations.

1. REGENERATING SOILS AND MANAGING CARBON

Soil is a key non-renewable resource, essential for biodiversity and carbon storage. At MAS Seeds®, we help farmers protect and improve soil health by:

- Offering our **MAS4 portfolio** to create carbon sinks, enhance fertility and support natural nitrogen production.
- Optimizing crop operations with our **AGROPLUS®** services.

2. STRENGTHENING RESILIENCE TO CLIMATE CHANGE

Increasing food production while facing water scarcity is one of tomorrow's key challenges. At MAS Seeds®, we support this transition by:

- Breeding drought-resilient genetics, including our **GREEN+** and **WATERLOCK** maize.
- Selecting earlier-maturity varieties to improve adaptability.
- Developing tropical germplasm to strengthen our temperate maize portfolio.

3. ENHANCING BIODIVERSITY AND AGROECOSYSTEMS

With its systemic approach to regenerative agriculture, MAS Seeds® develops solutions to enhance biodiversity of soils and agroecosystems by:

- Offering adapted **MAS4 multi-species** cover crop blends and companion plants, increasing the number of species present in the field throughout the year.
- Producing seeds in **regenerative agriculture**, supporting biodiversity across our producer network.

4. IMPROVING PROTEIN AND FEED AUTONOMY FOR LIVESTOCK FARMERS

Increasing protein and feed autonomy helps minimise environmental impacts, mitigate economic and climatic risks, therefore improving the sustainability of the farms.

We support farmers to improve feed efficiency of their forages, from sowing to storage in silos by:

- Developing high energy and high protein species, varieties and mixtures as silage maize **GREEN+**, special alfalfa varieties and **MAS4 NUTRI** (forage mixtures) products.
- Proposing **NUTRIPLUS®** services to cultivate, harvest and store the forages in the most efficient way.

Regenerative Agriculture at MAS Seeds®

MAS Seeds® has chosen regenerative agriculture, based on the conviction that resilient production systems depends on healthy soils.

Our teams are trained to support growers around common regenerative principles: reducing tillage, maintaining soil cover throughout the year, and improving humus balance to increase organic matter. This framework now guides our agronomic approach.

THE THREE MAIN LEVERS FOR SOIL REGENERATION:

COVERING THE SOIL ALL YEAR ROUND

Protects the soil from erosion, improves its ability to retain water and nutrients, and supports the establishment of following crops.

LIMITING MECHANIC SOIL TILLAGE

Preserves soil structure and helps to maintain key biological activity (earthworms, bacteria, fungi).

MAINTAINING POSITIVE HUMIC BALANCE

Increases or maintains organic matter levels for healthier, more resilient soil, better water retention and higher soil carbon.

THE BENEFITS OF REGENERATIVE AGRICULTURE FOR FARMERS:

More fertile and protected soils

- Year-round soil cover protects soils from erosion and runoff (1 cm of soil can take 200 to 400 years to rebuild).
- Cover crops, especially legumes, naturally enrich soils, returning up to 100 units of nitrogen per hectare and capturing 30 units in autumn, reducing nutrient losses.

Greater resilience to water stress

- More porous soils allow rainwater to infiltrate rather than runoff.
- Deeper root systems help crops access water more efficiently.
- +1% organic matter = +30 mm of available water, potentially saving 1 to 2 irrigation cycles, depending on conditions.

Improved technical and economic efficiency

- Reduced tillage means less time in the field and lower fuel use.
- Improved soil biological activity supports more efficient nutrient use and lower input needs over time.

A lever for carbon storage

- Higher organic matter and limited soil disturbance increase carbon storage in soils.
- These practices may provide access to carbon credit schemes, depending on programs.

MAS Seeds® has made regenerative agriculture a structured approach, implemented across the entire value chain.

1. Selection of resilient maize and sunflower varieties, adapted to climate change

- **Use of advanced scientific models** to identify the most stress-tolerant varieties.
- **Modelling future pedoclimatic conditions** to anticipate impacts on crop rotations and the growth cycles.

2. Development of high-performance cover crops and forage mixtures

- **Rigorous evaluation and selection** of 60+ species, adapted to multiple uses.
- **Multi-action mixture science:** multi-species cover crops and forage mixtures selected to maximize benefits in maize and sunflower rotations.

3. Research on sustainable, regenerative, and profitable agricultural

- **Maize intercropping:** associate maize with cover crops to avoid cover crop sowing difficulties after harvest of maize.
- **Maize solar corridors:** innovative maize sowing scheme to localize inputs on maize only.

SEED PRODUCTION UNDER REGENERATIVE AGRICULTURE

1. Experimentation on pilot farms

- **13 pilot farms** testing regenerative agriculture practices.
- **Objective:** identify the most efficient practices adapted to seed production.
- **Focus areas:** reduced soil tillage, cover crops, optimized nitrogen fertilization, and irrigation management.

2. Transition of the producers' network

- **Development** of a three-level r**egenerative agriculture framework** based on pilot-farm results.
- **25% of French producers at Level 1 in 2025**, which mainly involves implementing technical cover crops and optimizing irrigation.
- **Target: 100% of farms at Level 1 by 2028.**

2024 — Launch of our **pilot farms network** and **production specification**

2025 — **First seeds from level 1** committed farms

2025 à 2028 — Transitioning the **entire French network**

2028 — **100% of farms in France** reach commitment level 1

French network progresses toward **levels 2 and 3**

Begin transitioning in Spain and Ukraine

High quality seeds for higher yield

Throughout the process from the harvest until the packaging, between each production step, seed samples are taken and tested 6 times as quality indicators to **ensure the best quality** possible.

MAS Seeds® AND SEED PRODUCTION:

- For MAS Seeds® the hybrid production has always been a strategic activity.
- **With more than 75 years of experience**, we are a European leader in hybrid seed production.

+5 to 7%
Higher germination rate compared to official standards*

Reception

Each variety arrives at the factories and go through a multiple-step preparation including: sorting, drying, shelling, calibration and treatment.

Drying

At MAS Seeds® we use strict production protocols and high-tech facilities to combine great genetics with seed enhancement to give your crop the best possible start.

Shelling & pre-cleaning

Calibration

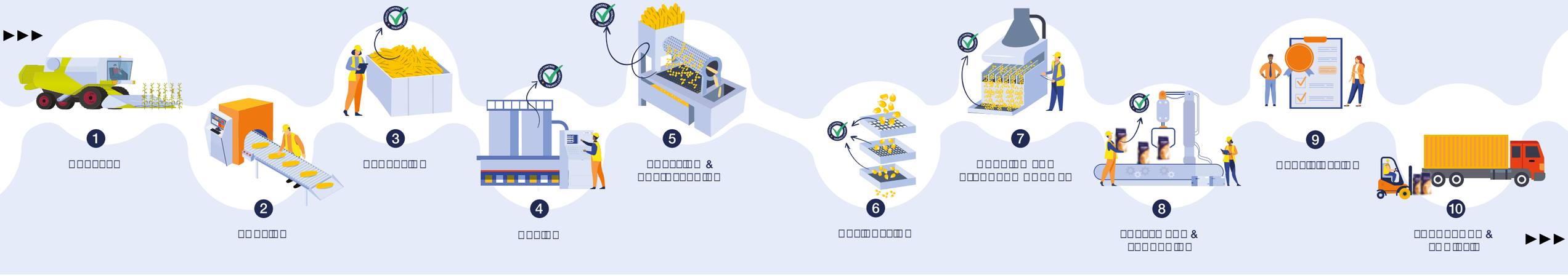
Calibration methods guarantee that all seeds are of the best quality possible in each bag.

Standard grading

Seeds are carefully selected to deliver the best results, boosting germination vigour for a quicker plant development.

Treatment & packaging

Each seed variety is conditioned by its bag size and treatment type. Each factory is equipped with printing and labelling machines and certifed by local officials. This process guarantees high-quality only.



1-HIGH QUALITY SEEDS

- Production protocols adapted to each variety.
- High-tech industrial capacities.
- Required quality controls at each step of the process.
- Custom calibration methods to guarantee the best seed homogeneity in each bag.

2-SEED APPLIED SOLUTIONS

- A department of experts dedicated to creating and experimenting with solutions applied to the seed.
- A high-tech coating process in our 4 factories.
- A full seed protection.
- A real boost to the germination vigour for quicker plant development.

AGRO START+

A DIRECT IMPACT ON YIELD

- Better thanks to reduced plant losses.
- Quicker emergence.
- Plants grow at the same rate and are less prone to size disproportions.
- Better soil prospection allows a more efficient use of water and nutrients.

+2 to 7%
higher yield depending on emergence conditions*

* Source: MAS Seeds® database.

Organic seeds at MAS Seeds®

Organic farmers rely on organic seeds to meet the growing demand for certified organic products. These seeds are essential to the integrity of the supply chain for quality organic food, feed and other products.

Organic farming challenges can be quite different from conventional systems. Our seeds provide the genetic tools to confront these day-to-day challenges in the field.

SPECIFIC VARIETY SELECTION CRITERIA

- Excellent **starting vigour** and **strong root development**.
- **Disease tolerance** in order to reduce losses through pests and secure yield.
- Management of competitive weeds: **rapid soil cover** and **row closure**, robust stems adapted to mechanical weed control.
- **Performance, stress tolerance** and regularity under all conditions.

In order to evaluate these achievements, MAS Seeds® invests each year in a special organic test network from Terres Inovia and Arvalis.

SPECIAL PRODUCTION NETWORK

We have built a well-functioning network of organic seed producers who follow all the rules and requirements set out in the EU and GNIS specifications. We define a cultivation protocol adapted to the production area to produce every hybrid where the yield potential is the highest.

OUR OWN PRODUCTION FACILITY

MAS Seeds® is ORGANIC certified, and we have a specific production line for organic agriculture seeds.

We renew our accreditation through semi-annual audits by a certified organization (CERTIPAQ Organic).

For over 15 years, MAS Seeds® invests in development and production of organic seeds.

WE ASKED OUR EXPERT:

[illegible]?

The organic production fields are well **isolated**:

- Keeping isolation distances is essential. We increased the isolation distance from recommended 500 m to 700 m to ensure purity of the crops.

The **sowing date** is optimised:

- Not too early, so that weeds have enough time to emerge. For sunflower production, we carry out mechanical weed control before the sowing.
- Not too late, to avoid endangering the harvest. Also, special attention should be paid to botrytis. It is a requirement for the certification for organic seeds.

The **weeding** is done mechanically for all species. We also conduct trials for innovative solutions and use some organic weed control measures.

Nicolas LABEYRIE
MAS Seeds® Production Expert

ORGANIC MAIZE AND SUNFLOWER PORTFOLIO

CROP	VARIETY	TYPE	EARLINESS	EARLY VIGOUR	MILDEW	DISEASE TOLERANCE	STRESS TOLERANCE
MAIZE	MAS 075B BIO	Flint	Ultra early	****		****	***
	MAS 250F BIO	Flint - Dent	Early	****		****	***
SUNFLOWER	MAS 81K BIO	Linoleic	Early	****	RM9	****	****
	MAS 815OL BIO	High Oleic	Early	****	RM9	****	***
	MAS 910OL BIO	High oleic	Mid late	****	RM9+	****	****

** correct   *** good   **** excellent

Grain and Silage

Varieties and advices 2026-27

	VARIETIES	MATURITY	FAO Silage**	FAO Grain***	USE AND CHARACTERISTICS					AGRONOMY				
					Type of grain	Use	Energy type	GREEN+	WATER LOCK	Early vigour	Dry down	Stay-green	Water stress tolerance	Harvest lodging
	STARLORD	Ultra early	190	190	Flint	Silage, Bio-gas, Grain	Starchy			7	7	7	8	8
NEW	MAS 123W	Very early		220	Flint - Dent	Grain				7	9	7	7	7
	MAS 075B	Very early	190		Flint	Silage, Biogas	Starchy	◢		8	6	9	8	8
NEW	MAS 159A	Very early	230	240	Flint	Silage, Bio-gas, Grain	Balanced			8	7	7	7	8
	HULK	Early	280		Flint	Silage, Biogas	Starchy			9	8	8	7	7
	MAS 23M	Early		270	Dent	Grain			◢	7	9	7	8	8
	MAS 270S	Early	260		Flint	Silage, Biogas	Balanced	◢		8	6	9	8	8
	INTERACTIS	Early		280	Dent	Grain				8	7	7	8	8
	MENHIR	Early	270		Flint	Silage, Biogas	Balanced			9	6	8	7	8
NEW	MDM2505*	Early	250	270	Flint	Silage	Balanced	◢		9	7	8	8	8
	MAS 251T	Early		270	Dent	Grain			◢	7	7	7	8	8
NEW	MDM2515*	Early	270		Flint - Dent	Silage	Balanced			8	7	7	8	8
NEW	MADMAX	Mid early	290		Flint	Silage, Biogas	Starchy			8	7	7	8	7
	MAS 306P	Mid early		300	Dent	Grain				8	7	7	7	7
	TURBOJET	Mid early		300	Dent	Grain				8	8	6	7	7
	MAS 335I	Mid early	310	340	Dent	Grain, Silage	Starchy		◢	8	8	7	8	8
	STARMAS	Mid early	280		Flint - Dent	Silage, Biogas	Starchy Energy			8	7	7	8	8
	MAS 405D	Mid early		395	Dent	Grain			◢	8	6	8	8	8
NEW	MDM3335*	Mid early		340	Dent	Grain			◢	7	7	9	8	9
NEW	MAS 409H	Mid late	410	390	Dent	Silage, Biogas	Starchy	◢		8	6	9	8	8
	MAS 448G	Mid late		480	Dent	Grain			◢	8	7	7	8	8
	MAS 524A	Late		510	Dent	Grain				7	7	8	8	9
	ASTON	Late	570	570	Dent	Grain, Silage, Biogas	Starchy			9	7	7	8	8
	MAS 59K	Late		580	Dent	Grain				8	8	7	7	7
NEW	FULGOR	Late		590	Dent	Grain				8	7	8	8	8
	MAS 538P	Late		530	Dent	Grain				8	7	8	7	8
	SONORA	Late		520	Dent	Grain				8	7	8	7	8
	MAS 529D	Late		540	Dent	Grain				8	7	8	8	8
	MAS 78T	Very late	700	700	Dent	Grain, Silage, Biogas	Balanced	◢		8	6	9	8	8
NEW	KALZIO	Very late	740	740	Dent	Silage, Biogas	Balanced			8	7	9	7	7
	SHANIYA	Very late	720		Dent	Silage	Balanced	◢		9	7	9	8	8

* In registration process
** Silage maturity at 32% DM
*** Grain maturity for 35% H2O for flint, 32% H2O for dent

1-3 bad | 4-6 average – good | 7-9 excellent

MAKE THE BEST OUT OF EACH DROP

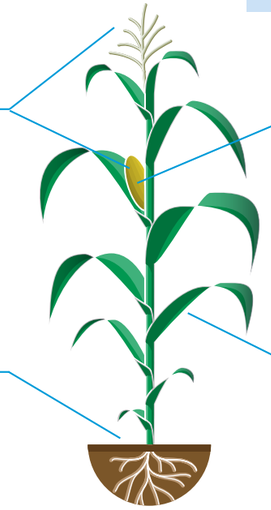
At MAS Seeds® we have more than 75 years of seed experience. Historically, our breeding structures were based in France and Germany and used to provide varieties well adapted to an oceanic climate.

Since 2000, our commercial deployment in central and eastern Europe combined with more severe and frequent droughts with high temperature peaks in Western Europe have leaded our breeding programs to select new hybrids with better drought tolerance.

Today, maize hybrids from the MAS Seeds® portfolio that have a superior ability to thrive under drought stress conditions are labelled WATERLOCK.

WATERLOCK hybrids have a superior ability to thrive under drought stress

BREEDING CRITERIA



Early flowering

During the flowering stage, maize plants are highly sensitive to drought stress. By speeding up the flowering time, they can take advantage of the available water resources in the spring and avoid summer heat waves.

Synchronisation of male and female flowering

A timely synchronisation between the silk emergence and the shed pollen is critical to ensure proper pollination and optimal kernel count for each ear.

Strong root system

Their strong and deep root system that explores the soil is essential to improve the plant water uptake, while delaying drought stress damages.

Leaf area index establishment and upkeep

The efficient establishment and maintenance of the leaf area, even under drought stress, is a priority to maximise photosynthesis activity.

IMPROVED PHYSIOLOGICAL RESILIENCE

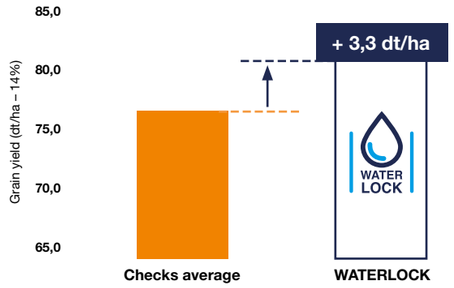
WATERLOCK plants are more suited to return to a normal activity after a drought stress period.

BENEFITS FOR THE FARMER

In situations where maize plants have to face short or long periods of drought stress, WATERLOCK maize hybrids have demonstrated a superior yielding ability compared to market competitors. They bring security to the farmer, and guarantee profitability regardless of potential weather conditions.

WATERLOCK – maize hybrids
to make the best out of each drop!

WATERLOCK: Performance is visible in the field



Data R&D MAS Seeds®
Seasons 2012-2020 – fields with drought stress detected

INVESTMENTS IN AGRONOMY AND TECHNOLOGY

A wide maize trial network, adapted to all weather scenarios

MAS Seeds® has developed its R&D centers in Ukraine, Romania, Russia with local breeding programs. In these regions where water supply is limited, our teams are able to accurately identify the most productive genetic resources.

A large data collection

- Phenotype data: plant morphology, physiology and yield components.
- Environmental data: climate data, soil water supply and crop management.
- Genotype data: a complete genetic screening of all the resources involved.

Modern data analytics methods

Our data scientist team integrates the data collected in the field and in the laboratory, in order to evaluate and predict the drought tolerance of the upcoming maize hybrids.

EARLY

MAS 23M

THE BEST SELLER
IN EARLY DENT GROUP

WATER LOCK

- **PERFORMANCE IN ALL SITUATIONS**
  suitable for high and low potential.
- **VERY SAFE AGRONOMY**
  short plant, good disease profile.
- **EARLY FLOWERING AND EXPRESS DRY DOWN**
  low harvest moisture in all environment.

CHARACTERISTICS

Plant height:	Medium-Low
Ear insertion:	Low
Type of grain:	Dent
Nr of rows:	14-16
Nr of grains per row:	30-34
TKW:	290-310 g
Flowering (°C):	875°C
Grain maturity 32% H_2O:	1730 °C

Temperature sums, base 6°C

AGRONOMY

Early vigour:	7
Stay green:	7
Dry down:	9
Helminthosporium:	9
Fusarium (ear):	8
Lodging:	8
Drought tolerance:	8

1-3 sensitive | 4-6 medium – good | 7-9 excellent

GROWING RECOMMENDATIONS

	Optimal conditions	Limited conditions
Adaptation	++++	++++
Density (Grain Pl/ha)	95 000	80 000

EARLY

MAS 251T

BIG EAR ON
A SHORT PLANT

WATER LOCK

- **EXCELLENT YIELD POTENTIAL WITH GREAT REGULARITY**
  to secure profitability
- **VERY SHORT PLANT, STRONG STEM**
  to stay out of troubles at harvest.
- **VERY HEALTHY PLANT**
  great healthyness of leaves and stem.

CHARACTERISTICS

Plant height:	Low
Ear insertion:	Low
Type of grain:	Dent
Nr of rows	16
Nr of grains per row:	28-32
TKW:	300-320 g
Flowering (°C):	890 °C
Grain maturity 32% H_2O:	1760 °C

Temperature sums, base 6°C

AGRONOMY

Early vigour:	7
Stay green:	7
Dry down:	7
Helminthosporium:	8
Fusarium (ear):	8
Lodging:	8
Drought tolerance:	8

1-3 sensitive | 4-6 medium – good | 7-9 excellent

GROWING RECOMMENDATIONS

	Optimal conditions	Limited conditions
Adaptation	++++	+++
Density (Grain Pl/ha)	95 000	75 000

MAS 251T is a versatile hybrid that will thrive in very diverse environments. Its short stature and great yield potential makes it a relevant choice for many corn growing areas. **MAS 251T** is a WATERLOCK hybrid that can whistand drought periods.

MID LATE

MAS 405D

PROFITABILITY
& SECURITY

WATER LOCK

- **BIG YIELD PERFORMANCES**
  on all 300 & 400 areas.
- **EARLY FLOWERING**
  To simplify crop management.
- **STRONG PLANT**
  For flexible harvest planing.

CHARACTERISTICS

Plant height:	Low
Ear insertion:	Low
Type of grain:	Dent
Nr of rows:	18
Nr of grains per row:	36-38
TKW:	340 g
Flowering (°C):	945 °C
Grain maturity 32% H2O:	1900 °C

Temperature sums, base 6°C

AGRONOMY

Early vigour:	8
Stay green:	8
Dry down:	6
Helminthosporium:	8
Fusarium (ear):	8
Lodging:	8
Drought tolerance:	8

1-3 sensitive | 4-6 medium – good | 7-9 excellent

GROWING RECOMMENDATIONS

	Optimal conditions	Limited conditions
Adaptation	+++	++++
Density (Grain Pl/ha)	90 000	75 000

MAS 405D offers both security and performance thanks to its early flowering and good plant agronomy. The variety is labelled WATERLOCK for its resilience under heat or water stress which ensures yield across a wide range of growing conditions.

MID LATE

MAS 448G

STRONG AND YIELDY

WATER LOCK

- **HIGH YIELD PERFORMANCE**
  on FAO 400 market.
- **SECURE PLANT QUALITY**
  top agronomy with good diseases profile.
- **SHORT AND STABLE PLANT**
  in all type of soils.

CHARACTERISTICS

Plant height:	Medium-Low
Ear insertion:	Short
Type of grain:	Dent
Nr of rows:	16
Nr of grains per row:	34-36
TKW:	320 g
Flowering (°C):	980 °C
Grain maturity 32% H_2O:	1950 °C

Temperature sums, base 6°C

AGRONOMY

Early vigour:	8
Stay green:	7
Dry down:	7
Helminthosporium:	8
Fusarium (ear):	7
Lodging:	8
Drought tolerance:	8

1-3 sensitive | 4-6 medium – good | 7-9 excellent

GROWING RECOMMENDATIONS

	Optimal conditions	Limited conditions
Adaptation	++++	++++
Density (Grain Pl/ha)	85-95 000	70-80 000

Variety perfectly adapted for a wide range of growing environment. It will deliver high yields in fields with water availability, in this case you can increase the density for even better productivity. In drought prone situations **MAS 448G** labeled WATERLOCK will bring yield stability.

LATE

MAS 59K

THE BALANCED YIELD SOLUTION

- **HIGH YIELD POTENTIAL**
  in all growing situations.
- **BALANCED PLANT**
  to secure the harvest.
- **STRONG EARLY VIGOR**
  to secure crop installation.

CHARACTERISTICS

Plant height:	Medium
Ear insertion:	Low
Type of grain:	Dent
Nr of rows:	16-18
Nr of grains per row:	43-45
TKW:	345 g
Flowering (°C):	1015 °C
Grain maturity 32% H_2O:	2020 °C

Temperature sums, base 6°C

AGRONOMY

Early vigour:	8
Stay green:	7
Dry down:	8
Helminthosporium:	6
Fusarium (ear):	7
Lodging:	7
Drought tolerance:	7

1-3 sensitive | 4-6 medium – good | 7-9 excellent

GROWING RECOMMENDATIONS

	Optimal conditions	Limited conditions
Adaptation	++++	+++
Density (Grain Pl/ha)	850 000	75 000

MAS 59K is a maize hybrid with strong early vigor, good plant stability, and excellent ear fertility. It combines high yield potential with good adaptability, performs well even in less favorable conditions, and offers flexible sowing thanks to its good dry down.

VERY LATE

MAS 78T

GRAIN AND SILAGE
TOP PERFORMER

- **OUTSTANDING POTENTIAL**
  grain and silage.
- **STAYGREEN**
  to keep a wide range of harvesting date.
- **HEALTHY**
  high quality of plant and ear.

CHARACTERISTICS

Plant height:	High
Ear insertion:	Medium
Type of grain:	Dent
Nr of rows:	16
Nr of grains per row:	34-38
TKW:	400-450 g
Flowering (°C):	1065 °C
Grain maturity 32% H_2O:	1900 °C

Temperature sums, base 6°C

AGRONOMY

Early vigour:	8
Stay green:	9
Dry down:	6
Helminthosporium:	9
Fusarium (plant):	8
Fusarium (ear):	8
Lodging:	8
Drought tolerance:	8

1-3 sensitive | 4-6 medium – good | 7-9 excellent

FEED VALUE

Starch:
dNDF:
Energy:

GROWING RECOMMENDATIONS

	Optimal conditions	Limited conditions
Adaptation	++++	++++
Density (Grain Pl/ha)	85 000	75 000
Density (Silage Pl/ha)	85 000	80 000

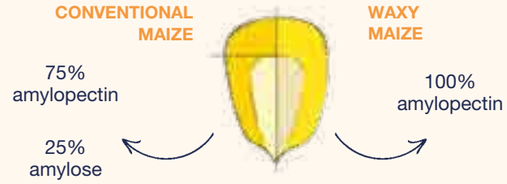
Waxy maize

Market and portfolio

MAIN CHARACTERISTICS

Waxy maize is a variety of maize whose starch is composed of 100% amylopectin, thanks to the presence of “waxy” gene. **When the maize kernel is cut, the endosperm appears shiny and wax-like.** Thus differentiating it from standard maize which contains between 70% and 75% amylopectin and 25% to 30% amylose.

Due to its varied industrial applications, waxy maize offers interesting economic opportunities for farmers, with a bonus price per ton.



HIGH QUALITY SUPPLY CHAIN

- **Seeds quality:** seeds are checked at several stages to ensure the purity and waxy quality of all our seed lots.
- **Purity in the fields:** to ensure the purity of waxy maize, farmers must isolate their fields by at least 200 meters from conventional maize crops and check for contamination before harvest using an iodine test.
- **Harvest and drying:** the optimal harvest moisture content for waxy maize is between 25% and 32% Drying must also be carefully controlled to avoid deteriorating the quality of the starch.

MARKET

The cultivation of waxy maize is subject to contracts between farmers and starch companies, ensuring market opportunities for producers. These contracts allow for advantageous purchase prices (a bonus per ton compared to conventional maize) and ensure product quality, meeting the requirements of processors.

In France the waxy market represents 30 000 ha and 76 000 ha in all Europe. Cultivation of waxy maize is rapidly expanding, with more and more land being allocated to this specific crop.

WAXY MAIZE PORTFOLIO

- **MAS 375WX** / Mid early /Dent
- **MAS 433WX** / Mid late / Dent
- **MAS 530WX** / Late / Dent
- **MAS 515WX** / Late / Dent
- **MAS 541WX** / Late / Dent

MAIN OUTLETS

HYBRIDS TO SECURE FEED EFFICIENCY IN A CHANGING CLIMATE

- HARVEST FLEXIBILITY
- BETTER CONSERVATION
- MORE ENERGY AND DIGESTIBILITY

KEY RESEARCH AXES OF MAS Seeds® SILAGE R&D PROGRAM:

- DM yield/ha
- Feed value (starch & digestibility)
- **GREEN+***
- Starting vigour

*Green+ is defined as the genetic ability of a variety to delay leaf and stem maturity, therefore maintain their photosynthetic area active for longer period.

Breeding criterias

GREEN+ varieties have the genetic capacity to improve the quality of foliage and to extend the harvest window from 5 to 10 days.

Harvesting high-quality silage at correct maturity is a major objective for the farmers in order to ensure the feeding of their dairy cows. Milk production is closely linked to the **quality of harvested and stored silage.**

In addition to dry matter (DM) yield, feed value and starting vigour, **MAS Seeds® maize silage R&D has worked for 15 years on the drought tolerance** of plants. **GREEN+ portfolio** is the result of this research.

CHARACTERISTICS AND ADVANTAGES OF GREEN+ HYBRIDS

HARVEST

- Good **stay-green** of the plant.
- More **flexibility to harvest +5 to 10 days***.
- Better organisation of **harvest planning**.

STORAGE IN SILO

- More **soluble sugars** in the plant.
- Better silo **conservation +3% of green forage grain***.
- Fermentation and **pH decrease start quicker**.

FEEDING

- Slower evolution of **grain dry matter**.
- Higher **valorisation of starch +5% digestible starch***.
- Grains easier to crash.

*Source: MAS Seeds® trial results in mini clamps – 2017 & 2018.

MID EARLY

MAS 335I

THE MULTI TASKS HYBRID

WATER LOCK

- **EXCELLENT PERFORMANCE IN NON-IRRIGATED AREAS**
  well adapted to climate change.
- **FLEXIBILITY OF USE FOR THE FARMER**
  good performance for Forage and Grain harvest.
- **GRAIN PERFORMANCE**
  good plant agronomy till black layer and quick dry down.

CHARACTERISTICS

Plant height:	Medium - High
Ear insertion:	Medium
Type of grain:	Dent
Nr of rows:	16-18
Nr of grains per row:	34-38
Flowering (°C):	920 °C
Grain maturity at 32% H_2O*:	1820 °C
Silage maturity 32% DM:	1580 °C

Temperature sums, base 6°C

AGRONOMY

Early vigour:	8
Stay green:	7
Dry down:	8
Helminthosporium:	7
Fusarium (plant):	8
Fusarium (ear):	7
Lodging:	8
Drought tolerance:	8

1-3 sensitive | 4-6 medium – good | 7-9 excellent

FEED VALUE

Starch:
dNDF:
Energy:

GROWING RECOMMENDATIONS

	Optimal conditions	Limited conditions
Adaptation	++++	++++
Density (Grain Pl/ha)	90 000	80 000
Density (Silage Pl/ha)	95 000	90 000

MAS 335I is a variety designed to meet the challenges of climate change, delivering excellent performance in non-irrigated areas. Positioned at the heart of the FAO 300 group, it ensures strong crop establishment, good plant quality, and reliable yields even under water stress. It is a smart choice for growers seeking stability and adaptability even in limiting conditions.

BESTSELLER

EARLY

HULK

INCREDIBLE HULK

- **IMPRESSIVE AND LEAFY PLANT**
  brings high yield of dry matter.
- **HIGH FEEDING VALUE WITH STARCH CONTENT**
  excellent overall digestibility.
- **HEALTHY AND STAY GREEN**
  flexible harvest date.

CHARACTERISTICS

Plant height:	High
Ear insertion:	Medium
Type of grain:	Flint
Nr of rows:	16-18
Nr of grains per row:	32-36
Flowering (°C):	880 °C
Silage maturity 32% DM:	1540 °C

Temperature sums, base 6°C

AGRONOMY

Early vigour:	9
Stay green:	8
Dry down:	8
Helminthosporium:	7
Fusarium (ear):	9
Lodging:	7
Drought tolerance:	7

1-3 sensitive | 4-6 medium – good | 7-9 excellent

FEED VALUE

Starch:
dNDF:
Energy:

GROWING RECOMMENDATIONS

	Optimal conditions	Limited conditions
Adaptation	++++	++++
Density (Silage Pl/ha)	85 000	75 000

ULTRA EARLY

STARLORD

THE STAR OF THE FUTURE

- **VERY GOOD LEVEL OF DIGESTIBILITY**
  good level of starch and % dNDF.
- **VERY GOOD STANDABILITY**
  to secure the quality of the harvest.
- **HIGH SILAGE POTENTIAL**
  stable and reliable behaviour.

CHARACTERISTICS

Plant height:	Medium
Ear insertion:	Medium
Type of grain:	Flint
Nr of rows:	16-18
Nr of grains per row:	28-32
TKW:	330-340 g
Flowering (°C):	770 °C
Silage maturity 32% DM:	1380 °C

Temperature sums, base 6°C

AGRONOMY

Early vigour:	7
Stay green:	7
Dry down:	7
Helminthosporium:	9
Fusarium:	8
Fusarium (ear):	9
Lodging:	8
Drought tolerance:	8

1-3 sensitive | 4-6 medium – good | 7-9 excellent

FEED VALUE

Starch:
dNDF:
Energy:

GROWING RECOMMENDATIONS

	Optimal conditions	Limited conditions
Adaptation	++++	++++
Density (Silage Pl/ha)	105 000	95 000

NEW

MID LATE

MAS 409H

SAFE SILAGE YIELD

GREEN+

STARCH ENERGY

- **EXCELLENT SILAGE PRODUCTIVITY**
  adapted to any situation also in stress situation.
- **VERY GOOD SILAGE LOOK**
  good stem standability.
- **GOOD PLANT QUALITY**
  good stay green.

CHARACTERISTICS

Plant height:	High
Ear insertion:	Medium
Type of grain:	Dent
Nr of rows:	16-18
Nr of grains per row:	32-36
Flowering (°C):	940 °C
Silage maturity 32% DM:	1650 °C

Temperature sums, base 6°C

AGRONOMY

Early vigour:	8
Stay green:	9
Dry down:	6
Helminthosporium:	8
Fusarium (plant):	7
Fusarium (ear):	7
Lodging:	8
Drought tolerance:	8

1-3 sensitive | 4-6 medium – good | 7-9 excellent

FEED VALUE

Starch:
dNDF:
Energy:

GROWING RECOMMENDATIONS

	Optimal conditions	Limited conditions
Adaptation	++++	++++
Density (Silage Pl/ha)	89 000	83 500

Adapted to various production situations, **MAS 409H** provides good silage potential together with plant quality and stay-green. This hybrid is labilised GREEN+.

LATE

ASTON

ENERGY GENERATOR

STARCH ENERGY

- **HIGH YIELD LEVEL**
  silage & grain.
- **MASSIVE STRONG PLANT**
  requested for double use.
- **SILAGE FEED VALUE**
  to maximise energy.

CHARACTERISTICS

Plant height:	Medium
Ear insertion:	Low
Type of grain:	Dent
Nr of rows:	16-18
Nr of grains per row:	36-38
TKW:	330 g
Flowering (°C):	1010 °C
Silage maturity 32% DM:	1780 °C

Temperature sums, base 6°C

AGRONOMY

Early vigour:	9
Stay green:	7
Dry down:	7
Helminthosporium:	6
Fusarium (plant):	7
Fusarium (ear):	8
Lodging:	8
Drought tolerance:	8

1-3 sensitive | 4-6 medium – good | 7-9 excellent

FEED VALUE

Starch:
dNDF:
Energy:

GROWING RECOMMENDATIONS

	Optimal conditions	Limited conditions
Adaptation	+++	++++
Density (Silage Pl/ha)	90 000	80 000

VERY LATE

SHANIYA

BIG PLANT FOR SILAGE

GREEN+

BALANCED ENERGY

- **GOOD LEVEL OF YIELD**
  in all potential conditions.
- **GOOD FEED VALUE**
  thanks to the digestibility of fibers.
- **GOOD CROP INSTALLATION**
  to secure early & late sowing.

CHARACTERISTICS

Plant height:	Very High
Ear insertion:	High
Type of grain:	Dent
Nr of rows:	16
Nr of grains per row:	38-42
TKW:	360 g
Flowering (°C):	1070 °C
Silage maturity 32% DM:	1920 °C

Temperature sums, base 6°C

AGRONOMY

Early vigour:	9
Stay green:	9
Dry down:	7
Helminthosporium:	8
Fusarium (plant):	8
Fusarium (ear):	8
Lodging:	8
Drought tolerance:	8

1-3 sensitive | 4-6 medium – good | 7-9 excellent

FEED VALUE

Starch:
dNDF:
Energy:

GROWING RECOMMENDATIONS

	Optimal conditions	Limited conditions
Adaptation	++++	++++
Density (Silage Pl/ha)	100 000	90 000

NEW

VERY LATE

KALZIO

BIG, GREEN & POWERFUL

- **BIG PLANT, HIGH YIELD**
  Tall plant with high yield potential.
- **HIGH STAY GREEN**
  Excellent stay-green until harvest maturity.
- **BIG STARTING VIGOR**
  For rapid establishment.

CHARACTERISTICS

Plant height:	Very High
Ear insertion:	High
Type of grain:	Dent
Nr of rows:	16-18
Nr of grains per row:	34-36
Flowering (°C):	1100 °C
Silage maturity 32% DM:	1960 °C

Temperature sums, base 6°C

AGRONOMY

Early vigour:	8
Stay green:	9
Dry down:	7
Helminthosporium:	8
Fusarium (ear):	7
Standability:	7
Drought tolerance:	7

1-3 sensitive | 4-6 medium – good | 7-9 excellent

FEED VALUE

Starch:
dNDF:
Energy:

GROWING RECOMMENDATIONS

	Optimal conditions	Limited conditions
Adaptation	++++	++++
Density (Silage Pl/ha)	90 000	80 000

KALZIO is an hybrid with very high silage yield potential. It is particularly well adapted to the climatic conditions of Mediterranean Basin countries, including hot and dry environments where stable performance and drought tolerance are essential.

Silage maize

Nutritional quality & energy profile

SELECT A SILAGE VARIETY SUITABLE FOR YOUR CATTLE'S DIET

The nutritional quality of silage varieties is at the heart of our silage maize breeding program. The energy in the maize silage comes from the starch and the fiber digestibility of the stem and leaves. MAS Seeds® has determined two different energy types to categorise maize silage varieties, depending on the dominant source of energy:

- **Balanced energy varieties.**
- **Starchy energy varieties.**

REASONING BEHIND THE APPROACH

All MAS Seeds® silage varieties are analysed for their nutritional quality and the ratio of their fiber and starch energy at harvest between 32% and 35% DM.
We then categorise varieties by their energy profile and we recommend them depending on the diet put in place by the cattle farmers.

PRACTICED DIET	MAIZE SILAGE DOMINANT	GRASS AND ALFALFA DOMINANT
Maize ratio	**More than 70% maize**	**Less than 70% maize**
Recommended maize silage profile	• Need fiber digestibility in maize • No excess starch • Acidosis risk management	• Need energy concentration • Quick available energy • High level of starch
Feeding period	Late autumn – winter	Spring – summer – early autumn
Silage Energy profile	BALANCED ENERGY	STARCH ENERGY
Use advices	Can be supplemented with energy concentrates: • Grain or cereal • Maize cob mix	• It combines excellently with our alfalfa varieties and forage mixtures. • Limit additional source of starch (acidosis risk).

Higher methane production
with biogas hybrids

Maize is the main substrate (about 50%-60%) for the most biogas plants as it is a unique crop with the highest carbon efficiency per hectare.

THE MAIN CRITERIA FOR HIGHEST METHANE PRODUCTION/ha:

- **Massive yield in dry matter (DM)**
- **Methane production in litres per kg of DM**

We observe in our network of biogas trials that the production of methane/ha is directly linked to **DM yield. This is the key criteria of the selection of our biogas varieties in MAS Seeds®, respecting a minimum of 32% of DM to ensure the best quality of plant.**

MAS Seeds® research is also focused on secondary parameters:

- **High stay green:**
  - to secure the harvesting window;
  - to have a quicker fermentation on the silo and a better conservation of the quality.
- **Good fat content:** increase biogas production.
- **Good level of hemicellulose** for a better retention time in the digester.

BIOGAS PORTFOLIO

	VARIETIES	Maturity	Type	Biogaz/ha yield	"Biogaz Index (RATH Formule)"	Stay green	Fat	Hemicellulose
	MAS 09P	Ultra early	Flint	***	****	***	***	****
	MAS 075B	Ultra early	Flint	***	****	****	***	****
	MAS 195P	Very early	Flint	***	****	****	****	****
NEW	MDM1504*	Very early	Flint Dent	****	****	**	***	****
NEW	MDM2534*	Early	Flint Dent	****	****	***	****	***
NEW	MDM2505*	Early	Flint Dent	***	****	****	****	****
	STANLEY	Early	Flint	***	****	****	****	****
NEW	MDM2515*	Early	Flint	****	****	***	***	****
	MAS 270S	Early	Flint	****	****	****	***	****
	STARMAS	Mid early	Flint Dent	****	****	****	***	****
	MADMAX	Mid early	Flint Dent	****	****	****	***	****
	MAS 275L	Mid early	Flint Dent	****	****	***	****	****
NEW	MAS 335I	Mid early	Dent	***	****	**	***	****
	MAS 387L	Mid late	Dent	****	***	***	***	***
	MAS 409H	Mid late	Dent	****	***	****	***	****
	FULGOR	Late	Dent	****	***	***	****	****
	ASTON	Late	Dent	****	****	***	***	****
	SHANIYA	Very late	Dent	****	***	****	****	***

* In registration process

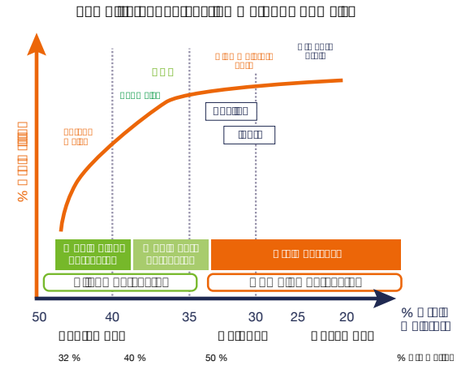
** correct *** good **** excellent

High moisture maize
for animal feed

Maize is an excellent source of energy for animals and can be harvested at different maturities depending on its intended use.

High moisture maize (HMC) is a farmland grown feed resource, which increases farm sustainability by limiting purchasing of off-farm feeds, transport and the energy cost of drying. It can be ensiled or stored in oxygen-limiting storage structures for a natural conservation.

The advantages in using HMC are numerous for pigs, dairy cows, beef, sheep and ducks: **nutritive, economic and organisational.**



Our advice to make the most profit from high moisture maize

The main target is to guarantee a **healthy maize** crop and avoid mycotoxins development due to fusarium:

- harvest before November 1st (select hybrids with an adapted maturity);
- destroy and bury harvest residues;
- control grain borers.

Advantages of high moisture maize

1. No drying cost.
2. A source of quicky digestible starch.
3. A multipurpose feed.
4. An efficient use of maize grown on farm.
5. An adapted and easy form of storage.

HIGH MOISTURE PORTFOLIO

	VARIETIES	Maturity	Type	Fusarium	Ease of grinding	Feed value	Protein	Quality of fat
	STARLORD	Very Early	Flint	****	***	****	***	****
NEW	MAS 123W	Very Early	Flint Dent	****	***	****	****	****
	KRAKEN	Very Early	Flint Dent	****	**	****	***	***
	MAS 23M	Early	Dent	****	****	***	***	****
	INTERACTIS	Early	Dent	****	***	****	****	***
	MAS 220V	Early	Dent	***	****	***	**	****
	MAS 251T	Early	Dent	****	****	***	***	****
	MAS 306P	Early	Dent	****	****	***	***	***
	MAS 405D	Mid early	Dent	****	****	***	***	****
	MAS 448G	Mid Late	Dent	****	****	****	****	***
	MAS 538P	Late	Dent	***	****	****	***	****
	SONORA	Late	Dent	****	***	****	****	****
	MAS 59K	Late	Dent	****	****	****	***	****
	MAS 78T	very late	Dent	****	***	****	****	****

* In registration process

** correct *** good **** excellent

AGROSTART® MAIZE SEED
APPLIED SOLUTION

INNOVATIVE MAIZE SEED CARE
FOR BETTER FIELD ESTABLISHMENT AND YIELD SAFETY

Biostimulant + Fungicide

AGROSTART®

More than a seed treatment, it is an innovative technology!

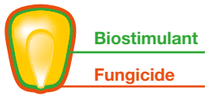
INNOVATIVE FORMULATION TO BOOST AND PROTECT PLANTS IN ALL ENVIRONMENTS

The innovative AGROSTART® standard formulation for stronger and well protected seedlings.

Two advanced formulations for environments with higher pest pressure, composed with the standard formulation and complementary solutions.

AGROSTART

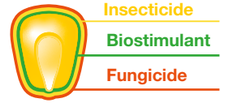
STANDARD FORMULATION



- **Biostimulants:** a new humic acid formulation to improve the absorption of nutrients available around seedlings.
- **Fungicide:** prevents damage during the early growth phase from fungi and secures emergence.

AGROSTART + INSECT

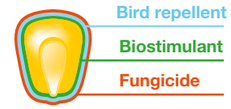
ADVANCED FORMULATION FOR SOIL INSECT PRESSURE



- **Biostimulant** and **fungicide** standard formulation.
- **Insecticide** (FORCE® 20 CS): protects against major soil insects as wireworms.

AGROSTART + BIRD

ADVANCED FORMULATION FOR BIRD PRESSURE



- **Biostimulant** and **fungicide** standard formulation.
- **Bird repellent** (KORIT®).

BENEFITS IN FIELD ESTABLISHMENT AND HARVEST

Boost and protect the seedlings for a better emergence:

- Quicker and more regular emergence.
- Higher emergence rate in cold conditions (+ 5% of raised plants).
- Better root exploration and nutrient absorption.

Improve yield in all situations, especially in cold conditions at emergence:

- + 3% Yield in average*.
- + 11% Yield in cold conditions at emergence*.

* Compared to standard treatment. Source: MAS Seeds® research in seed production data.

Force® 20 CS

syngenta

FORCE® 20 CS PROVIDES STRONG, RELIABLE PROTECTION AGAINST ALL SPECIES OF WIREWORMS, OPTIMIZING CROP ESTABLISHMENT. FORCE 20 CS DELIVERS EXCELLENT SEED SAFETY UNDER ALL CONDITIONS AND CAN BE USED IN COMBINATION WITH ALL OTHER SEED TREATMENTS.

UNIQUE VAPOUR EFFECT FOR INCREASED EFFICACY

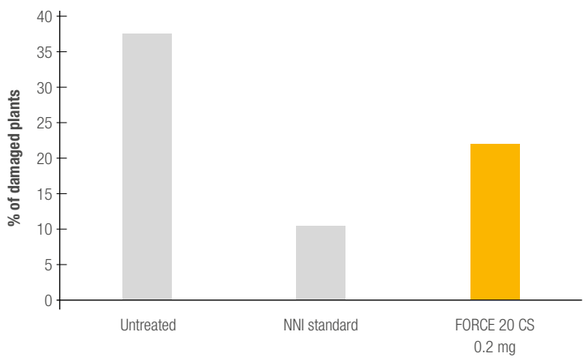
The active ingredient in FORCE 20 CS is tefluthrin, a compound belonging to the pyrethroid chemical class. FORCE 20 CS is formulated in suspension microcapsules.

MODE OF ACTION

- Tefluthrin works by contact, affecting the nerve system of the insects
- It diffuses from the seed as a gas creating a vapour zone around the roots, repelling or killing the insects upon contact
- FORCE 20 CS microcapsule formulation favors extended release of the product

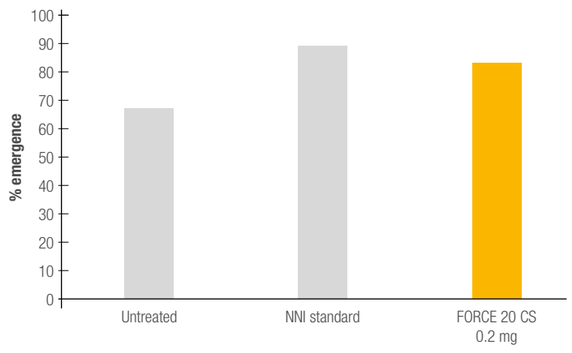
EFFICACY LEVELS IN WIREWORM CONTROL

FORCE 20 CS AT 0.2 MG/SEED SETS A NEW BASELINE IN WIREWORM CONTROL WHERE NEONICOTINOIDS (NNI) ARE NOT REGISTERED OR NOT ALLOWED



Wireworm control. Summary of 18 trials – Germany. Pest Incidence – 30-55 DAP

FORCE 20 CS INSECT CONTROL APPROACHING THE LEVEL OF THE PREVIOUS STANDARD

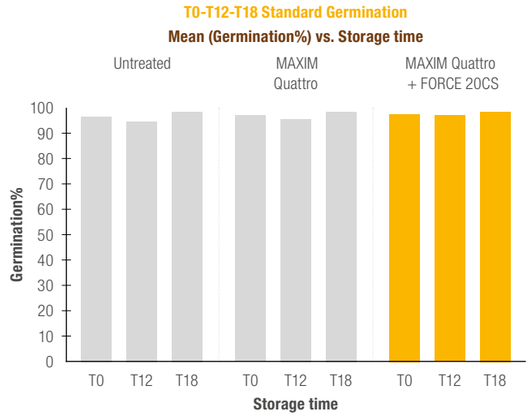


Wireworm control. Summary of 2 trials – France. 52-57 DAP - % of emergence vs. number of seeds planted

EXCELLENT SEED SAFETY

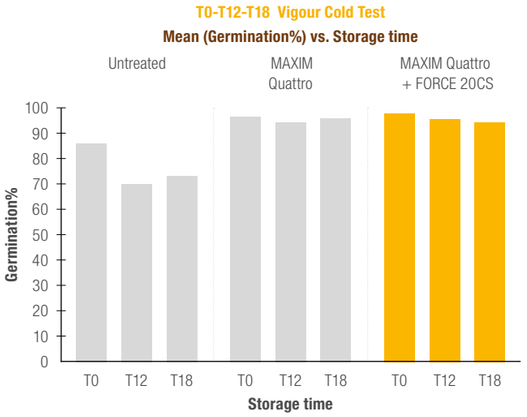
FORCE 20 CS IS VERY SAFE TO SEEDS AFTER STORAGE WITH HIGH LEVELS OF GERMINATION AND VIGOUR 18 MONTHS AFTER TREATMENT

- FORCE 20 CS treated seeds with MAXIM® Quattro compared to untreated seeds
- No adverse effects observed neither in the Standard Germination test nor in cold test



STANDARD GERMINATION

Average across different seed-lots after testing under favourable growth conditions. Testing after 0, 12 and 18 months of ambient storage.



VIGOUR AVERAGES

Average across different seed-lots after exposing the seeds to cold stress. Testing after 0, 12 and 18 months of ambient storage.

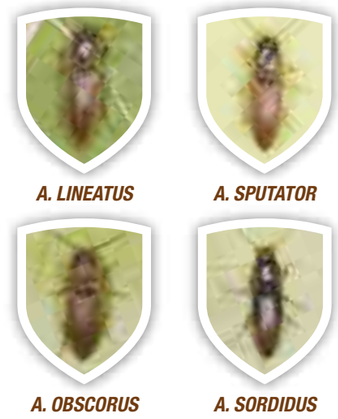
WIREWORMS, A MAJOR PEST IN CORN

Wireworms are widely distributed in Europe, 5 main species (*A. lineatus, A. sputator, A. obscorus, A. brevis* and *A. sordidus*) have been identified to cause the most severe, economic damage. Larvae of Agriotes spp. feed underground for two to six years and most of their damage occurs in the spring. Prophylactic crop protection measures are the most effective to protect the young, vulnerable root system of seedlings from attack.

In recent years wireworm pressure has been increasing, mainly due to:

- The impact of modern agricultural practices such as “no-tillage”, tillage typically reduces populations through mechanical control.
- The reduction in use of chemical soil insecticides due to their ban.

Wireworms can cause significant damage from planting until BBCH 17-18 stage (7 to 8 leaf stage). In fields with a history of wireworm attack, plant damage can be as high as 70% for grain maize, 100% for sweet corn. Very early attack might drive to massive plant losses and it is not rare to observe up to 40% yield reduction.



AMONGST THE EXISTING SOLUTIONS, SEED TREATMENT SUCH AS FORCE 20 CS, IS THE MOST CONVENIENT AND EFFECTIVE WAY TO PRESERVE YOUR FIELD FROM HEAVY WIREWORM DAMAGE.

Force® 20 CS

syngenta

TROPICAL MAIZE

HIGH-PERFORMANCE GENETICS

MAS Seeds® selects and develops corn varieties for all continents through an international network of research stations.

For tropical zones, we rely on **two dedicated breeding stations located in Mexico and Ivory Coast.**

The agro-climatic diversity of these environments enables us to create varieties adapted to **the tropical and subtropical regions of Africa and Central America**. This setup ensures high-performance genetics designed to meet local conditions and the real practices of farmers.

QUALITY SEEDS

As a recognized specialist in seed production, MAS Seeds® places quality at the heart of its commitments.

We know **that the seed is the first success factor of any maize crop.**

Our objective: to provide every farmer with reliable, uniform seeds capable of fully expressing the potential of their land, whatever the growing conditions.

Our Production teams rigorously oversee each step of the process, in compliance with international standards.

Our logistics hubs located in **Mexico** and **Abidjan** ensure the preservation of seed quality and reliable delivery times to end customers.

A DIVERSIFIED OFFER

We offer a full portfolio of **non-GMO hybrids** specifically adapted to the agricultural zones of Africa and Central America.
Our offer includes:

- **Varieties with complementary profiles** to provide a wide range of market needs (yellow grain, white grain, forage, animal feed, human consumption, etc.).
- **Different levels of agronomic adaptation** to suit every production context: tropical disease resistance, stress tolerance, flexibility in planting dates.
- **Field support:** provided by our local specialists, advising distributors and farmers to optimize the performance of the varieties.

	VARIETIES	MATURITY	USE AND CHARACTERISTICS			SOWING DENSITY (grains/hectare)			
			Type of grain	Use	Energy type	Silage - Optimal	Silage - Limited	Grain- Optimal	Grain - Limited
	MASTROP 143	tropical	yellow dent	grain, silage	Starch	90 000	70 000	85 000	65 000
NEW	MASTROP 702	tropical	yellow dent	grain				90 000	65 000
	MASTROP 103	tropical	orange flint dent	grain, silage	Balanced	80 000	60 000	80 000	55 000
	MASTROP W43	tropical	white dent	grain, silage	Balanced	90 000	70 000	85 000	65 000
NEW	MASTROP W305	tropical	white dent	grain				90 000	65 000

AGRONOMY			DISEASE TOLERANCE				VARIETIES
Early vigour	Dry down	Stay-green	Fusarium (stem)	Fusarium (ear)	Hel-mintho	Eye spot	
8	8	9	8	7	7	7	MASTROP 143
8	8	8	8	8	8	7	MASTROP 702
8	8	8	7	7	7	7	MASTROP 103
7	8	8	7	7	7	7	MASTROP W43
7	7	8	7	8	8	7	MASTROP W305

NEW

YELLOW MAIZE

MASTROP 702

SAFETY SPEED & YIELD

- **HIGH YIELD PERFORMANCES**
  with heavy grain.
- **STRONG & SAFE HYBRID**
  stem leaves & cob.
- **QUICK CYCLE**
  from sowing to maturity.

CHARACTERISTICS

Plant height:	Medium
Ear insertion:	Medium - High
Type of grain:	Yellow - Dent - Dent
Nr of rows:	18-20
Nr of grains per row:	36-38
TKW:	380-400 g
Flowering (°C):	950 °C
Early vigour:	8
Stay green:	8
Dry down:	8
Helminthosporium:	8
Fusarium (plant):	8
Fusarium (ear):	8
Standability:	8
Drought tolerance:	8

GROWING RECOMMENDATIONS

	Optimal conditions	Limited conditions
Adaptation	++++	++++
Density Plants/ha	90 000	65 000

BESTSELLER

YELLOW MAIZE

MASTROP 143

A POWERFUL, STABLE AND REASSURING VARIETY

- **MEET ALL YOUR EXPECTATIONS**
  an off-road plant with well covered ears and nice yellow grain quality.
- **PROFITABLE TO YOUR ACTIVITY AND INDUSTRIAL STREAMS**
  suitable for all food uses and livestock activities thanks to its dent yellow vitreous grain.
- **HIGH DISEASE TOLERANCE**
  to leaf diseases to avoid early drying down.

CHARACTERISTICS

Plant height:	Medium - High
Ear insertion:	Medium
Type of grain:	Yellow - Flint - Dent
Nr of rows:	14-18
Nr of grains per row:	35-38
TKW:	330 g
Flowering (°C):	1280 °C
Early vigour:	8
Stay green:	9
Dry down:	8
Helminthosporium:	7
Fusarium (plant):	8
Fusarium (ear):	7
Standability:	8
Drought tolerance:	8

GROWING RECOMMENDATIONS

	Optimal conditions	Limited conditions
Adaptation	++++	+++
Density Plants/ha	85-95 000	65-70 000

NEW

WHITE MAIZE

MASTROP W305

POWER OF YIELD

- **HIGH YIELD PERFORMANCES**
  in all environments.
- **HEALTHY**
  stem & leaves.
- **BALANCED PLANT**
  consistent cobs on strong plant.

CHARACTERISTICS

Plant height:	Medium
Ear insertion:	Medium - High
Type of grain:	Yellow - Flint - Dent
Nr of rows:	18-20
Nr of grains per row:	36-38
TKW:	350-370 g
Flowering (°C):	1030 °C
Early vigour:	7
Stay green:	8
Dry down:	7
Helminthosporium:	8
Fusarium (plant):	7
Fusarium (ear):	8
Standability:	7
Drought tolerance:	8

GROWING RECOMMENDATIONS

	Optimal conditions	Limited conditions
Adaptation	++++	++++
Density Plants/ha	90 000	65 000

ORANGE FLINTY MAIZE

MASTROP 103

GOOD PROFIT FOR ALL OCCASIONS

- **FOR ALL TYPES OF FIELDS**
  better in early planting, MASTROP 103 is a maize hybrid adapted to all situations and soil types.
- **STABLE AND RUSTIC**
  with MASTROP 103, secure your yield and your profitabilty.
- **A VERY NICE GRAIN**
  elongated cob, smooth and orangey, good nutritional value for food and industrial use (gritz, poultry, farming, brewery).

CHARACTERISTICS

Plant height:	Medium - High
Ear insertion:	Medium
Type of grain:	Orange - Flint - Dent
Nr of rows:	16-18
Nr of grains per row:	38-40
TKW:	330-360 g
Flowering (°C):	1300 °C
Early vigour:	8
Stay green:	8
Dry down:	8
Helminthosporium:	7
Fusarium (plant):	7
Fusarium (ear):	7
Standability:	8
Drought tolerance:	7

GROWING RECOMMENDATIONS

	Optimal conditions	Limited conditions
Adaptation	+++	++++
Density Plants/ha	80 000	55-60 000

SUNFLOWER

Varieties and advices 2026-27

	VARIETIES	HARVEST MATURITY	FLOWERING MATURITY	USE AND CHARACTERISTICS							AGRONOMY			
				Oil type	Oil content	Oleic acid content	Herbicide tolerance	ORO	HelioSMART	NO RUST	Early Vigor	Water stress tolerance	Lodging	Mildew
NEW	MAS 801A	Very early	Very early	Linoleic	44 - 46%			G			7	8	8	RM9
	MAS 850B	Early	Early	Linoleic	44 - 45%			G		◢	7	7	9	RM9
	MAS 804G	Early	Early	Linoleic	44 - 45%			G			7	9	9	RM9
	MAS 817P	Early	Early	Linoleic	44 - 45%			G			7	7	9	
	MAS 81K	Early	Early	Linoleic	42 - 45%					◢	8	8	8	RM9
NEW	MAS 820AR	Early	Early	Linoleic	44 - 46%		A.I.R.™	G			7	8	9	RM9
NEW	MAS 823SU	Early	Early	Linoleic	44 - 45%		Express®	G			7	8	9	RM9+
NEW	MDS6625LS*	Mid early	Mid early	Linoleic	44 - 46%		Express®	G			7	8	9	RM9+
NEW	MAS 900SU	Mid late	Mid late	Linoleic	44 - 45%		Express®		◢	◢	7	8	9	RM9+
	MAS 85SU	Mid late	Mid late	Linoleic	46 - 47%		Express®			◢	8	8	7	RM9
NEW	MAS 852SU	Mid late	Mid late	Linoleic	44-45%		Express®	G			7	7	8	RM9
	MAS 920CP	Mid late	Mid early	Linoleic	43 - 45%		Clearfield® Plus		◢	◢	8	8	9	RM9
NEW	MAS 918CP	Mid late	Mid late	Linoleic	44 - 45%		Clearfield® Plus	G			7	7	9	RM9
NEW	MDS6525LP*	Mid late	Mid late	Linoleic	44 - 46%		Clearfield® Plus	G			7	7	8	RM9+
	MAS 81K BIO	Early	Early	Linoleic	43 - 44%					◢	8	8	8	RM9
NEW	MDS6925HC*	Early	Early	High oleic	45 - 47%	86 - 88%		G			7	7	7	
	MAS 815OL	Early	Mid early	High oleic	45 - 47%	89 - 91%					7	7	9	
NEW	MAS 835OL	Mid early	Early	High oleic	45 - 47%	86 - 88%					7	8	8	RM9
NEW	JAMAIQUIE	Mid late	Mid early	High oleic	46 - 48%	87 - 89%		G			7	7	7	
	MAS 910OL	Mid late	Mid early	High oleic	44 - 45%	87 - 89%			◢	◢	7	8	8	RM9+
	MAS 89HOCL	Early	Mid early	High oleic	45 - 47%	87 - 90%	Clearfield®				7	8	7	
NEW	MAS 812HOCP	Early	Early	High oleic	44 - 45%	87 - 88%	Clearfield® Plus				7	7	8	
	MAS 908HOCP	Mid late	Mid late	High oleic	44 - 45%	84 - 86%	Clearfield Plus			◢	6	7	8	RM9
NEW	MDS5325HS*	Mid early	Mid early	High oleic	43 - 45%	86 - 88%	Express®	G	◢		7	8	8	RM9+
NEW	MDS2124HS*	Late	Late	High oleic	43 - 44%	85 - 87%	Express®		◢		8	7	8	RM9+
	MAS 815OL BIO	Early	Mid early	High oleic	43 - 44%	86 - 88%					7	7	9	
	MAS 910OL BIO	Mid late	Mid early	High oleic	43 - 44%	86 - 88%			◢	◢	7	8	8	RM9+

* In registration process

1-3 bad | 4-6 average – good | 7-9 excellent

HelioSMART hybrids

have the highest genetic tolerance to the main diseases harmful to sunflowers

Managing the risk of diseases is a major issue for sunflower cultivation because diseases can impact the yield by 30% up to 100% depending on the conditions and the intensity of the attacks, it can also decrease their oil quality. Sunflower diseases have a direct impact on farmers' income and the performance of sunflower grain collectors. Good agricultural practices must be assisted by genetic innovations.

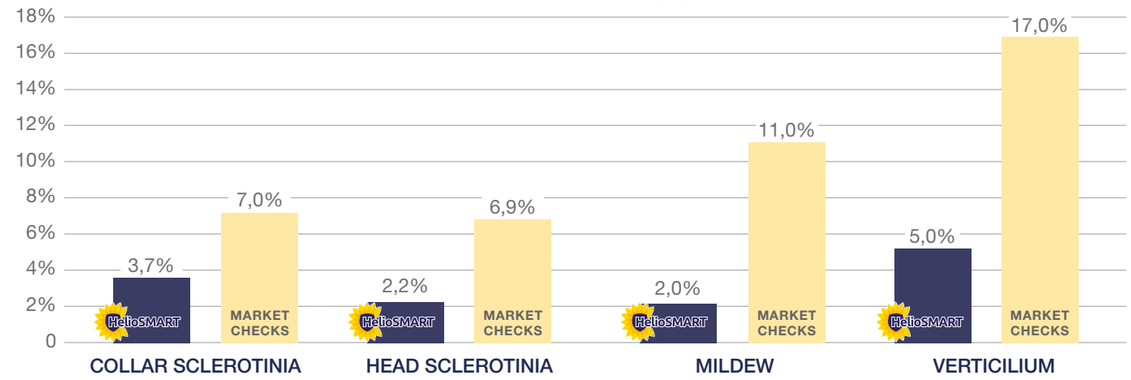
HelioSMART hybrids are the results of a breeding program specialised in resisting the major sunflower diseases, in particular mildew, present at the start of the cycle, sclerotinia, which attacks mainly from flowering, and verticillium, where contamination signs often appear at the end of the cycle. This genetic innovation is the result of many years of research and experimentations carried out in areas where disease pressure is the highest across Europe.

HELIOSMART HYBRIDS DISEASES PROFILE

- **Verticillium**: 8-9***
- **Sclerotinia**: <5% attacks**
- **Mildew**: RM9 profile**

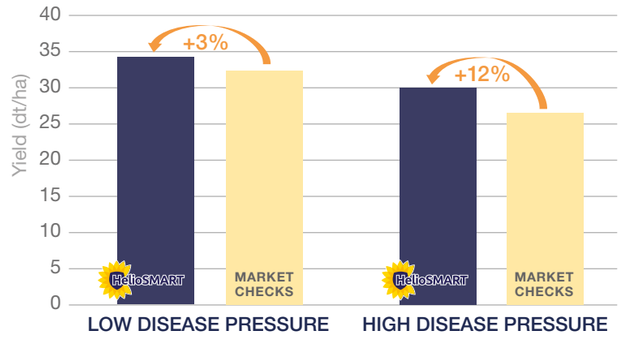
* 1= bad, 9 = very good
** Based on MAS Seeds® R&D network

CONTAMINATION LEVEL (%)



Results from MAS Seeds® R&D network from 2019 to 2023.

HELIOSMART HYBRIDS ARE SELECTED ON THEIR HIGH PRODUCTIVITY IN ALL DISEASE SITUATIONS



The HelioSMART hybrids have contamination levels that are 3% to 15% lower than the market reference varieties.

This translates into **an increase in crop yield up to 12% in high disease pressure situations.** In low disease pressure, HelioSMART hybrids offer on average 3% yield bonus compared to market standards.

HelioSMART hybrids ensure high performances, no matter the risk of potential diseases whatever disease pressure conditions.

Results from MAS Seeds® R&D network 2019-23, average with competitors, HelioSMART hybrids and classic hybrids.

Understanding Black Rust
up to 80% yield losses

Black Rust is one of the most aggressive diseases for sunflower, it can impact up to 80% yield losses and 15% of oil content. It impacts the plant by increasing transpiration (water losses), decreasing nutrient transfers to the grains and acceleration of senescence.

The disease appears from June to the harvest under ideal growing factors:

- High air moisture conditions (85-92%).
- Periodic rains.
- Temperatures between 12 to 30°C (optimum 25°C).

NORUST SUNFLOWER HYBRIDS WITH THE BEST TOLERANCE TO BLACK RUST

Genetic tolerance is the most efficient solution against black rust. Therefore, we have developed NORUST hybrids who have the best tolerance against black rust on the market.

NORUST hybrids are selected for their high tolerance to black rust:

- **8 to 9 notation** in 100% of our R&D trials.
- **30% less** black rust attack compared to the market reference varieties.

With NORUST hybrids, you can sow in all situations:

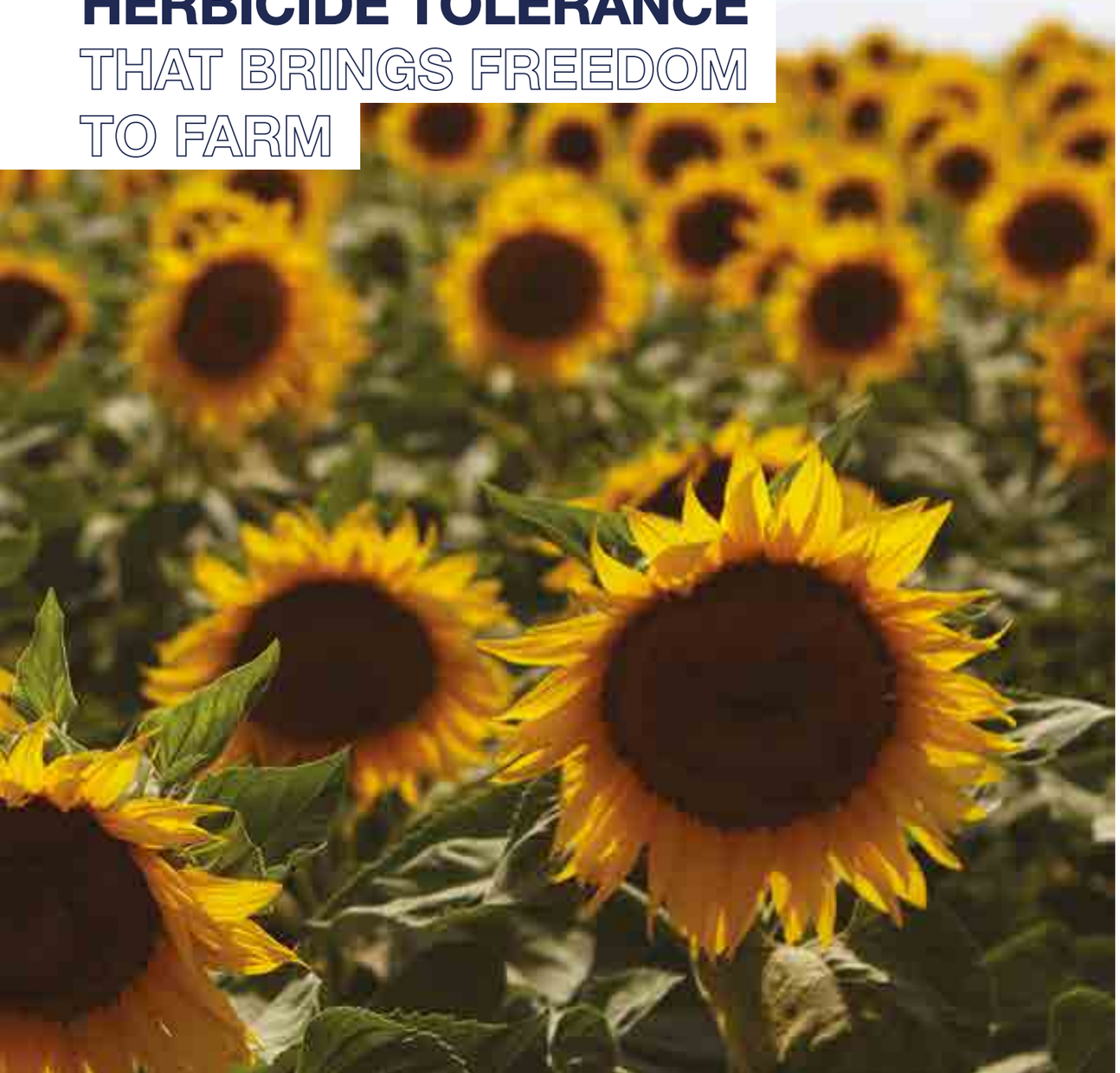
- **In low disease pressure:** hybrids will not develop visible symptoms.
- **In high disease pressure without fungicide:** later appearance of Black Rust infection and less impact compared to competitors.

NORUST HYBRIDS	CONTROLS HYBRIDS
 	 

NORUST HYBRIDS			
TECHNOLOGY	CLASSIC	EXPRESS SUN HERBICIDE	Clearfield® Plus Production System for Sunflower
SUNFLOWER HYBRID	**MAS 850B** **MAS 81K** **MAS 81K BIO** **MAS 910OL** **MAS 910OL BIO**	**MAS 900SU** **MAS 85SU**	**MAS 920CP** **MAS 908HOCP**

Where there's A.I.R.™ there's growth

HYBRIDS WITH DOUBLE HERBICIDE TOLERANCE THAT BRINGS FREEDOM TO FARM



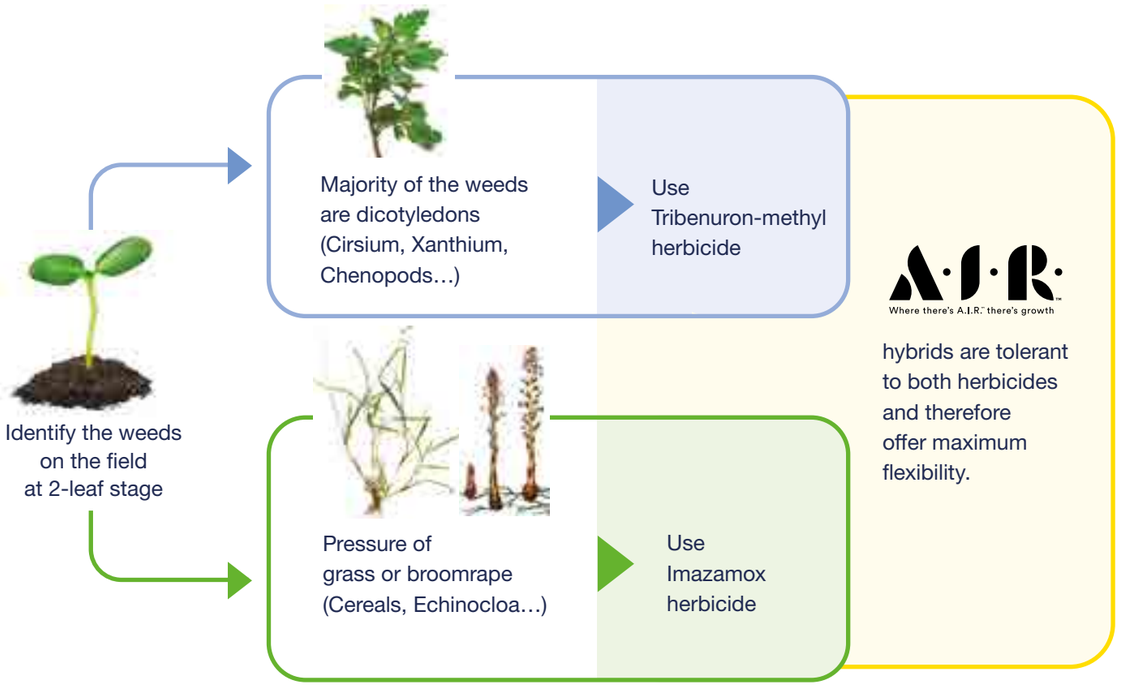
Sunflower A.I.R™ hybrids with double herbicide tolerance

WHAT IS AN A.I.R.™ HYBRID?

The A.I.R.™ genetic gives to farmers the possibility to manage their weed control program with a large range of ALS inhibitor herbicides including imizadolinone and tribenuron-methyl.

Farmers do not have to choose the weed control program before the sowing. They can adapt and react according real situations in their fields after germination.

The A.I.R.™ hybrids offer maximum of flexibility to farmers for more efficiency, more performance and more profitability.



HOW TO MANAGE WEED CONTROL WITH AN A.I.R.™ HYBRID?

Weed control recommendations and practices for A.I.R.™ hybrids are like other types of herbicide tolerant hybrids.

- **Favourable weather conditions:** Minimum 60% of hygrometry, favourable temperatures, minimum wind.
- **Correct spraying conditions:** Respect herbicide dosage recommendations, good application material, crop growth stage (between 2 and 8 leaves for sunflowers).

MAS 820AR

LINOLEIC | EARLY | HERBICIDE TOLERANT

WELCOME IN A NEW ERA FOR SUNFLOWER

masseeds®
ACT TOGETHER FOR A CHANGING AGRICULTURE

NEW

EARLY | LINOLEIC

MAS 820AR

WELCOME IN A NEW ERA FOR SUNFLOWER

- **A.I.R.™ TECHNOLOGY**
  for a maximum of adaptation.
- **EARLINESS**
  for a maximum of yield safety.
- **YIELD PERFORMANCE**
  able to perform vs mid-early hybrids.

PRODUCT ID

Maturity:	Early
Oil Type:	Linoleic
Herbicide trait:	A.I.R.™

CHARACTERISTICS

Flowering:	Early
Plant height:	Medium - Short
Head shape:	Slightly convex
Head position:	Slightly inclined
TKW:	Medium
Oil content:	44-46%

AGRONOMY

Early vigour:	7
Lodging:	9
Drought tolerance:	8
Broomrape:	G
Mildew:	RM9
Phomopsis:	7
Sclerotinia (collar):	8
Sclerotinia (head):	7
Sclerotinia (stem):	7
Verticillium:	7

1-3 sensitive | 4-6 medium – good | 7-9 excellent

GROWING RECOMMENDATIONS

	Optimal conditions	Limited conditions
Adaptation	++++	++++
Density (Grain Pl/ha)	68-70 000	55-60 000

MAS 820AR is the symbol of the innovation. MAS Seeds® is the 2nd seed company to launch an AIR hybrid. This new technology offers a maximum of flexibility to farmers to manage weed control. Don't need to choose between TBMT or IMI products **MAS 820AR** proposes the most secured profile: Early, ORO G, RM9, short plant and a maximum of yield potential for an early hybrid with **MAS 820AR** you jump in a new era for sunflower.

High oleic sunflowers

High value crop from grower to end-user

An extra price for farmers, a healthier oil, an useful oil composition for companies, **High Oleic (HO) sunflowers** have all qualities to seduce the protagonists of the sunflower market.

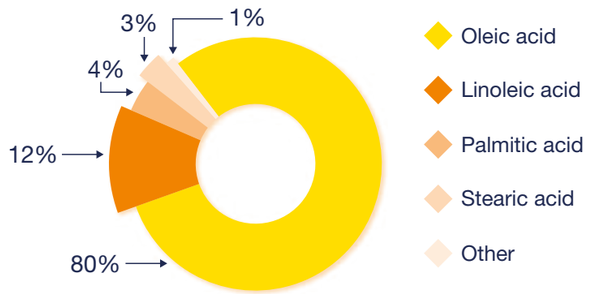
HIGH OLEIC SUNFLOWERS

HO sunflowers are different in oil composition. Contrary to linoleic sunflowers, the oil transformation chain is blocked by enzymes before the full transformation. The transformation from oleic acid to linoleic acid is stopped and the concentration of oleic acid increases and surpasses easily 80% (vs. 20% for linoleic sunflowers).

In the field, there are no differences in cultivation practices between the two types of sunflower and the oil content is also the same.

For a HO sunflower, the **30 days following the flowering are particularly important** to establish the oil content and the oleic acid content.

High oleic sunflower composition



BENEFITS OF HIGH OLEIC SUNFLOWERS CULTIVATION

Health

HO oil contains a high percentage of monounsaturated fatty acid. This fatty acid family allows cholesterol levels to decrease easier and helps fight high blood pressure. HO oil is also rich in vitamin E and antioxidants which protect our cells.

Industry

HO oil has a better stability for cooking compared to classic oils, therefore HO oil is very sought after by agribusiness companies. HO oil is also frequently used in green chemistry companies and **can be used as bio lubricant, green ester and biofuel.**

Environment

Contrary to palm oil, which comes from far away countries and increases their deforestation problems, **HO oil is produced in Europe** and doesn't require the destruction of forests. Today, more and more farmers are launching in organic sunflower cultivation to answer a new demands from customers.

NEW

EARLY | HIGH OLEIC

MAS 812HOCP

TO SEE THE FUTUR PEACEFULLY

- **EARLINESS** for a better adaptation to climate change.
- **YIELD PERFORMANCES** excellent results in early group.
- **TOP AGRONOMY** short plant, disease and lodging tolerance.

PRODUCT ID

Maturity:	Early
Oil Type:	High Oleic
Herbicide trait:	Clearfield® Plus

CHARACTERISTICS

Flowering:	Early
Plant height:	High
Head shape:	Convex
Head position:	Slightly inclined
TKW:	Medium
Oil content:	44-45%
Oleic acid content:	87-88%

AGRONOMY

Early vigour:	7
Lodging:	8
Drought tolerance:	7
Broomrape:	E
Mildew:	RM8
Phomopsis:	7
Sclerotinia (head):	7
Sclerotinia (stem):	6
Verticillium:	6

1-3 sensitive | 4-6 medium – good | 7-9 excellent

GROWING RECOMMENDATIONS

	Optimal conditions	Limited conditions
Adaptation	++++	++++
Density Plants/ha	65-68 000	50-55 000

NEW

EARLY | HIGH OLEIC

MAS 835OL

TOP YIELD & TOP OIL, WHAT ELSE?

- **IMPRESSIVE YIELD RESULTS** to break yield records.
- **EXCELLENT OIL CONTENT** to answer to oil collector demand.
- **AGRONOMIC PROFILE** to secure yield in all conditions.

PRODUCT ID

Maturity:	Mid Early
Oil Type:	High Oleic

CHARACTERISTICS

Flowering:	Early
Plant height:	Medium
Head shape:	Convex
Head position:	Convex
TKW:	High
Oil content:	45-47%
Oleic acid content:	86-88%

AGRONOMY

Early vigour:	7
Lodging:	8
Drought tolerance:	8
Broomrape:	E
Mildew:	RM9
Phomopsis:	7
Sclerotinia (head):	7
Sclerotinia (stem):	7
Verticillium:	7

1-3 sensitive | 4-6 medium – good | 7-9 excellent

GROWING RECOMMENDATIONS

	Optimal conditions	Limited conditions
Adaptation	++++	++++
Density Plants/ha	65-68 000	55-60 000

Sunflower hybrids with herbicide tolerance

Weed control is a key point in the growing process. Large amounts of weeds use up water meant for crops, reducing the yield (by 10% to 20% depending on the situation).

MECHANICAL WEED CONTROL

Hoeing, while decompacting compacted soils is a useful complement to chemical weed control. The synergy between chemical and mechanical weed control increases yield by an average of 9%. This can be done, according to the height of the crop, up to the 4-5 leaf pair stage.

CHEMICAL WEED CONTROL

In most cases, pre-emergence weed control programs combine a broad spectrum graminicide product with a broad-leaf herbicide product.

COMBINE DIFFERENT STRATEGIES TO OPTIMISE EFFICIENCY

PRE-EMERGENCE APPLICATION

You can use it on all types of sunflower. It is recommended to apply it in situations with low weed pressure.

POST EMERGENCE APPLICATION

- **Hybrids with tolerance to tribenuron-methyl:** It is important to sow an Express® tolerant hybrid in this case. Very efficient in case of pressure of Datura, Bindweed hedges, Bidens, Xanthium, Cirsium and wild sunflower. No action on grass (support with a pre-emergence application).

- **Hybrids with tolerance to imidazolinone:** It is important to sow a hybrid certified Clearfield® or Clearfield® Plus. Full spectrum grass, dicots and also against broomrape.

- **All Hybrids:** It is now possible to use an herbicide containing Arylex™, which is selective to sunflower plants. This type of herbicide is efficient against some dicots (ammi majus, mercurialis, goosefoot, ambrosia) but the action against grass is limited.

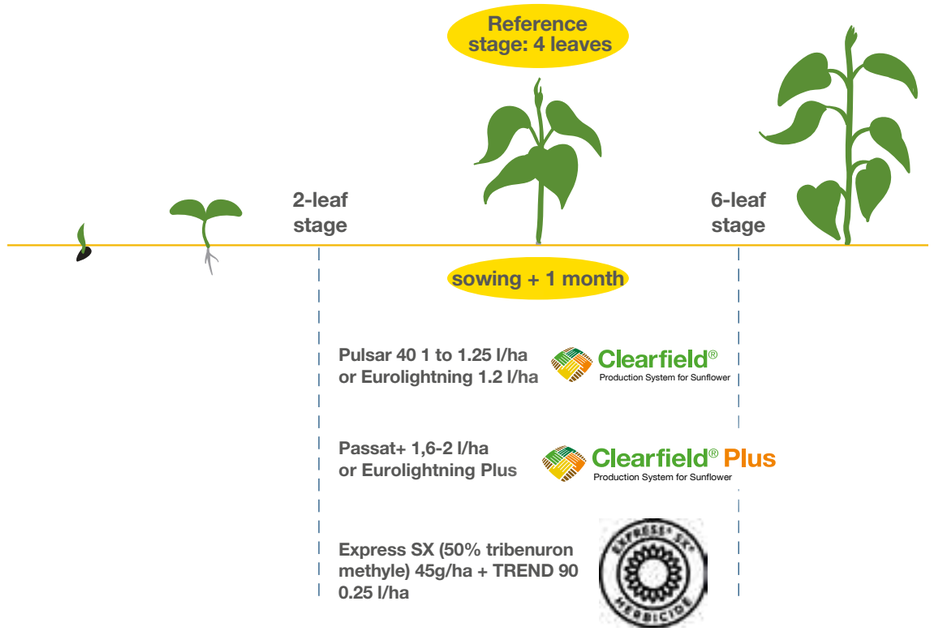
It is important to use an adapted hybrid to your strategy to avoid the total destruction of the field.

SUNFLOWER PORTFOLIO WITH TOLERANCE

OIL TYPE	EARLINESS		Clearfield® Plus / Clearfield®	A.R.
LINOLEIC	VERY EARLY EARLY	MAS 823SU MAS 83SU MAS 820AR	MAS 820AR	MAS 820AR
	MID EARLY MID LATE	MAS 85SU MAS 852SU MAS 900SU MDS6625LS*	MAS 920CP MAS 918CP MDS6525LP*	
HIGH OLEIC	VERY EARLY EARLY		MAS 812HOCP MAS 89HOCL	
	MID EARLY MID LATE	MDS5325HS* MDS2124HS*	MAS 908HOCP	

* In registration process

HERBICIDE APPLICATION PERIOD



Sunflower
Broomrape management

BROOMRAPE: A KEY PARASITE TO MANAGE CAREFULLY

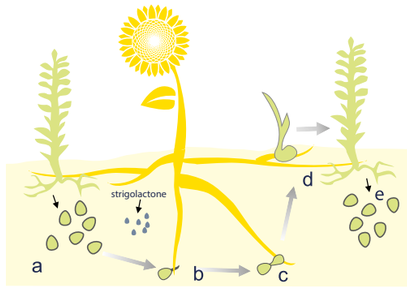
Orobanche cumana (english: broomrape) affects significantly final sunflower yield. This parasitic plant, affecting specifically and exclusively sunflower (and some other Helianthus types), is expanded around the Black sea and also in south of Spain and in few regions in France. Fortunately, solutions exist to manage broomrape and reduce his impact on yield.

Between herbicide tolerant sunflowers and hybrids genetically tolerant to F, G and G+ races, MAS Seeds® produces a large choice of solutions for farmers. Nevertheless, some basic best practices are important to secure the field and limit the propagation of Orobanche Cumana.

OROBANCHE CUMANA LIFE CYCLE

Broomrape plant produces thousands of seeds kept in soil many years before emergence (a).
Broomrape seeds germination is stimulated by sunflower: strigolactone released in soil by sunflower roots (b).
Fixation on sunflower roots, broomrape grows using sunflower energy and produce seeds (c, d, e).

Choosing adapted sunflower hybrids, broomrape can't emerge and produce new seeds: most effective strategy to avoid increasing number of seeds in fields and develop new contamination areas.



CULTIVATION PRACTICES UNDER BROOMRAPE INFESTATION

BEFORE SOWING – ROTATION

- Identify risky fields.
- Implement proper crop rotation: minimum 3 years between 2 sunflower crops in the same field.

CULTURAL OPERATIONS

- Use sunflower **hybrids genetically tolerant to broomrape** race identified or use a Clearfield® or Clearfield® Plus variety.
- Clearfield® or Clearfield® Plus hybrids → use proper herbicide sprayed at maximum advised dosis**.
- Choose **double protection (hybrid genetically tolerant to broomrape + Clearfield® Plus) for hardest cases.**
- Avoid nutrients deficiency in order to have strong sunflower crop.

AFTER HARVEST

- Harvest orobanche-free fields first & infested fields at the end.
- **Clean carefully harvesting equipment** between each fields.
- Bury residues in soil to avoid broomrape seeds dispersion by wind and wild animals.

MAS Seeds® solutions for broomrape infested areas

OIL TYPE	CONVENTIONAL	Clearfield® Plus Production System for Sunflower	OPTIMISED FOR EXPRESS™ HERBICIDE	A·I·R Where there's A.I.R.: there's growth
LINOLEIC	MAS 801A MAS 804G MAS 850B MAS 817P	MAS 918CP MDS6525LP*	MAS 823SU MAS 852SU MDS6625LS*	MAS 820AR
HIGH OLEIC	MDS6925HC* JAMAIQUIE		MDS5325HS*	

* In registration process. **For right hybrid choice and dosis advices, don't hesitate to ask your local MAS Seeds® contact.

NEW

MID LATE | LINOLEIC

MAS 900SU

NO CHALLENGE CAN
AFRAID IT

- **N°1 FOR YIELD**
  to target all potentials – even over 5 t/ha.
- **ADAPTABILITY**
  to perform in every farms.
- **HELIOSMART**
  to secure the yield.

PRODUCT ID

Maturity:	Mid Late
Oil Type:	Linoleic
Herbicide trait:	Express

CHARACTERISTICS

Flowering:	Mid Late
Plant height:	High
Head shape:	Slightly convex
Head position:	Mid erected
TKW:	Very High
Oil content:	44-45%

AGRONOMY

Early vigour:	7
Lodging:	9
Drought tolerance:	8
Broomrape:	E
Mildew:	RM9+
Phomopsis:	8
Sclerotinia (collar):	8
Sclerotinia (head):	9
Sclerotinia (stem):	8
Verticillium:	8

1-3 sensitive | 4-6 medium – good | 7-9 excellent

GROWING RECOMMENDATIONS

	Optimal conditions	Limited conditions
Adaptation	++++	++++
Density (Grain Pl/ha)	65-68 000	50-60 000

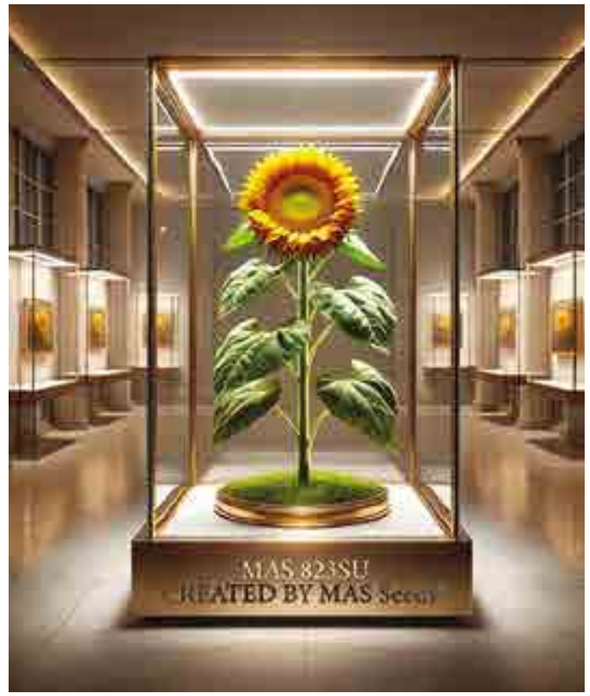
MAS 900SU is a new generation of hybrids able to perform in all situations. Its disease profile protects yield potential from sowing to harvest. Its results are impressive for 2 years in our R&D network. It's very often in TOP 3 of trials. No doubts, with **MAS 900SU** you will achieve highest yield objectives

NEW

EARLY | LINOLEIC

MAS 823SU

THE TREASURE
OF YOUR FIELDS



- **YIELDY**
  to perform everywhere.
- **ORO G**
  to limit impact of broomrape.
- **EARLINESS**
  to ease your crop rotation.

PRODUCT ID

Maturity:	Early
Oil Type:	Linoleic
Herbicide trait:	Express

CHARACTERISTICS

Flowering:	Early
Plant height:	Medium - Low
Head shape:	Slightly convex
Head position:	Slightly inclined
TKW:	Medium
Oil content:	44-45%

AGRONOMY

Early vigour:	7
Lodging:	9
Drought tolerance:	8
Broomrape:	G
Mildew:	RM9+
Phomopsis:	7
Sclerotinia (collar):	8
Sclerotinia (head):	8
Sclerotinia (stem):	8
Verticillium:	7

1-3 sensitive | 4-6 medium – good | 7-9 excellent

GROWING RECOMMENDATIONS

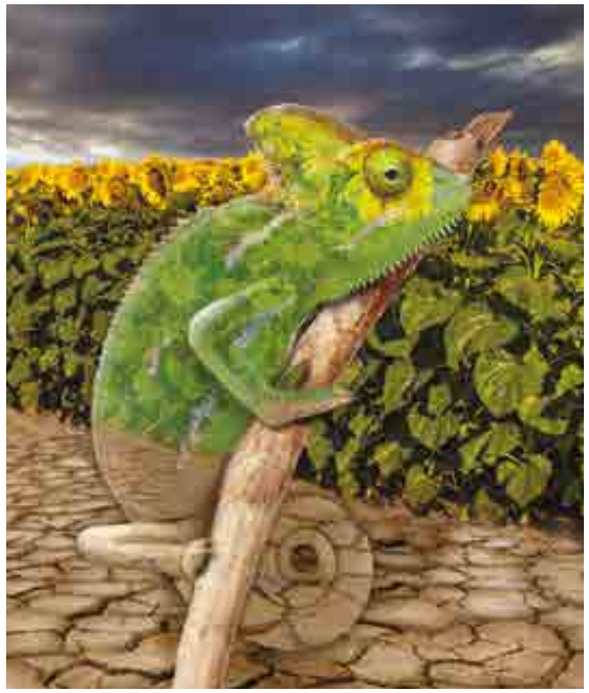
	Optimal conditions	Limited conditions
Adaptation	+++	++++
Density (Grain Pl/ha)	65-70 000	65-68 000

MAS 823SU is a new early oro G Express hybrids. This hybrid represents the future of this market segment. Its performances and its earliness will convince 100% of farmers who will sow it. You can develop this variety in all territories, all situations and all conditions. **MAS 823SU** is a future TOPsales in sunflower market.

MID EARLY | LINOLEIC

MAS 920CP

MISTER YIELD



- **YIELD**
  to increase harvests.
- **VERY YIELDY**
  to fill silos.
- **VERY VERY YIELDY**
  to earn more money.

PRODUCT ID

Maturity:	Mid Early
Oil Type:	Linoleic
Herbicide trait:	Clearfield® Plus

CHARACTERISTICS

Flowering:	Mid Early
Plant height:	High
Head shape:	Flat
Head position:	Straight
TKW:	55-65 g
Oil content:	43-45%

AGRONOMY

Early vigour:	8
Lodging:	9
Drought tolerance:	9
Broomrape:	E
Mildew:	RM9
Phomopsis:	8
Sclerotinia (collar):	9
Sclerotinia (head):	9
Sclerotinia (stem):	9
Verticillium:	8

1-3 sensitive | 4-6 medium – good | 7-9 excellent

GROWING RECOMMENDATIONS

	Optimal conditions	Limited conditions
Adaptation	++++	++++
Density (Grain Pl/ha)	65-70 000	60-65 000

MAS 920CP is the most successful hybrid with Clearfield® Plus technology. Its productivity will leave a lasting impression on the farmers who sow it. **MAS 920CP** is the MISTER YIELD of the CLP sunflower market for the next years.

NEW

MID LATE | LINOLEIC

MAS 918CP

THE MERGER BETWEEN PERFORMANCE AND SAFETY

- **TOP YIELD RESULTS**
  performs whatever cultivation conditions.
- **HELIOSMART GENETIC**
  top tolerance against main sunflower diseases.
- **BROOMRAPE TOLERANCE**
  a CLP hybrid ORO G for a total protection.

PRODUCT ID

Maturity:	Mid Late
Oil Type:	Linoleic
Herbicide trait:	Clearfield® Plus

CHARACTERISTICS

Flowering:	Mid Late
Plant height:	High
Head shape:	Slightly convex
Head position:	Slightly inclined
TKW:	High
Oil content:	44-45%

AGRONOMY

Early vigour:	7
Lodging:	9
Drought tolerance:	7
Broomrape:	G
Mildew:	RM9
Phomopsis:	8
Sclerotinia (head):	9
Sclerotinia (stem):	9
Verticillium:	8

1-3 sensitive | 4-6 medium – good | 7-9 excellent

GROWING RECOMMENDATIONS

	Optimal conditions	Limited conditions
Adaptation	++++	++++
Density (Grain Pl/ha)	65-68 000	60-65 000

MAS 918CP is a new Clearfield® Plus hybrid with a broomrape tolerance. Its results are impressive for 2 years everywhere in Europe, whatever the broomrape pressure. In additional its ORO profil, **MAS 918CP** is highly tolerant to all diseases. It's for it is labelled HelioSMART. **MAS 918CP** has all qualities to be a best seller in sunflower market.

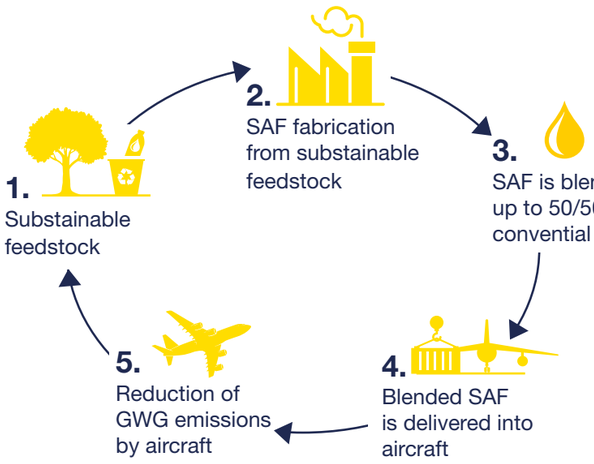
Sustainable Aviation fuel

Act together for a changing agriculture — this is the purpose of MAS Seeds®.

As part of this approach, the company has naturally developed a range of sunflower varieties that meet the agronomic and regulatory requirements for Sustainable Aviation Fuel (SAF) production.

SUSTAINABLE AVIATION FUEL (SAF)

SAFs are an alternative to fossil fuels used in aviation. They are produced from renewable resources and reduce significantly CO_2 emissions and mitigate the impact of climate change.



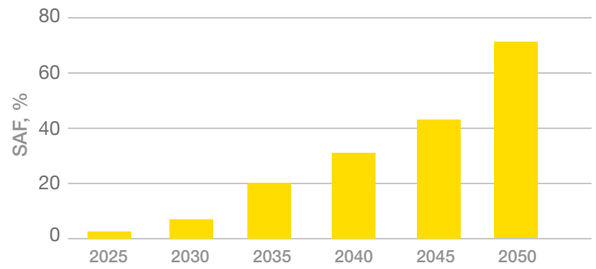
SAFs can be produced in different ways:

- from used cooking oils;
- from industrial waste;
- **from vegetable oils**;
- from green hydrogen and captured CO_2.

By reducing CO_2 emissions **up to 80%**, SAFs are a key solution for airlines in addressing climate challenges.

CROPS CHARACTERISTICS FOR SAF PRODUCTION

In 2023, the ReFuelEU Aviation regulation was adopted, requiring airlines operating within the EU to integrate a minimum percentage of SAF into their kerosene consumption. A phased timeline has been established to gradually increase this SAF share.



The established goal is to achieve 70% SAF usage by 2050 for all airlines.

Crops for SAF production are a strategic solution for airlines to quickly comply with this new regulation.

SAF CROPS MUST ADHERE STRICT CRITERIA:

- No competition with food crops (for human or animal consumption).
- No negative environmental impact (zero deforestation, no loss of biodiversity, limited use of phytosanitary products).

SAF crops must also meet agronomic requirements

Earliness

SAF crops must be sown early as cover crops to avoid competing with food crops.

Productivity

A minimum yield potential of 1,5 tons/ha is required.

Oil content

A minimum oil content of 40% is necessary.

Agronomic adaptability

Crops must withstand challenging growing conditions (high temperatures at emergence, cold and humid conditions at harvest), ensuring reliable agronomic performance from sowing to harvest.

MAS Seeds® has developed a sunflower variety that is highly suited to the industrial, agronomic, and regulatory demands of the SAF crop market. With its MAS 801A variety, MAS Seeds® positions itself as one of the pioneer in the SAF market in France and Europe.

MAS 801A is the ideal solution for farmers seeking to grow SAF crops:

Earliness: Ultra-early flowering which allows for catch crop sowing and facilitates harvesting.

Productivity: >1,5T/ha. Tested over 2 years in a dedicated SAF trial network. Has demonstrated its high yield potential across different locations.

Oil content: >44%. Fully meets industrial requirements.

MAS 801A
MAS 820AR

MAS Seeds® has established partnerships with several industrial groups to promote SAF crop production and contribute to a greener world with MAS 801A.

NEW GENERATION

AGROSTART® SUNFLOWER SEED APPLIED SOLUTION

A NEW INNOVATIVE SUNFLOWER SEED CARE FOR BETTER FIELD ESTABLISHMENT AND YIELD SAFETY

Biostimulant + Fungicide

MAS Seeds® launches its new generation of AGROSTART® for sunflower

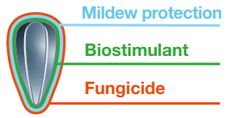
A NEW FORMULA FOR MORE PLANT PROTECTION AND MORE EFFICIENCY IN ALL ENVIRONMENTS

The innovative AGROSTART® standard formula for stronger and well protected seedlings.

Two advanced formulas for environments with higher pest pressure, made up with the standard formula and complementary solutions.

AGROSTART®

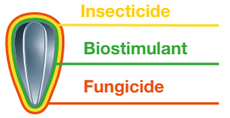
STANDARD FORMULATION



- **Biostimulant:** a new cocktail of multiple components (algae extracts, vitamins, biocomponents, chelated molybdenum and manganese) to improve the absorption of nutrients available around the seedlings and ensuring the best performance of your crops.
- **Fungicide:** prevents damage during the early growth phase from fungi and secure the emergence.
- **Mildew protection:** Mildew protection is also available in accordance with the local regulation, to support genetic protection.

AGROSTART® + INSECT

ADVANCED FORMULATION FOR SOIL INSECT PRESSURE



- **Biostimulant** and **fungicide** standard formula.
- **Insecticide**: protects against major soil insects such as wireworms.

BENEFITS FOR FIELD ESTABLISHMENT AND HARVEST

Boosts and protects the seedling for a better emergence:

- Assists in germination, root and shoot development.
- Leads to nutrients mineralization.
- Ensures great seedling development.

Improves yield in all situations, especially in heat and drought conditions:

- Healthier and stronger plants during establishment: +5% germination improvement*.
- Reduces environmental stress damage: + 6% Yield under heat or drought stress*.

* Compared to standard treatment. Source: MAS Seeds® research in seeds production data.

OILSEED RAPE

Varieties and advices 2026-27

	MATURITY & TYPE		USE AND CHARACTERISTICS						AGRONOMY				
VARIETY	Type	Flowering	Oil content	Protein content	GLS* content µmoles/g	Clearfield®	CLUBROOT RESIST	SAFETY+	Early vigour	Stem Elonga-tion	Growth after winter	Pod shattering	Lodg-ing
MIRANDA	OGU	Mid early	46 - 48%	34 - 37%	15 - 18				7	8	Early	9	8
KOMBIA	OGU	Mid early	42 - 44%	34 - 36%	15 - 17			●	8	9	Mid early	9	8
NEW BYSANCE CL	OGU	Mid early	42 - 44%	38 - 40%	16 - 18	●			6	9	Mid early	9	9
NEW DELRICO	OGU	Mid early	43 - 45%	37 - 39%	16 - 18		●		7	9	Mid early	9	9
NYMPHEA	OGU	Mid late	40 - 42%	36 - 38%	13 - 15		●	●	8	8	Mid early	9	9
COLUMBIA	OGU	Mid late	42 - 44%	36 - 38%	16 - 18			●	8	7	Mid late	9	9

*Glucosinolates
1-4 sensitive | 4-5 average | 6-7 good | 8-9 excellent

MAS Seeds® offers a competitive oilseed rape hybrid portfolio covering most known segments in the market:

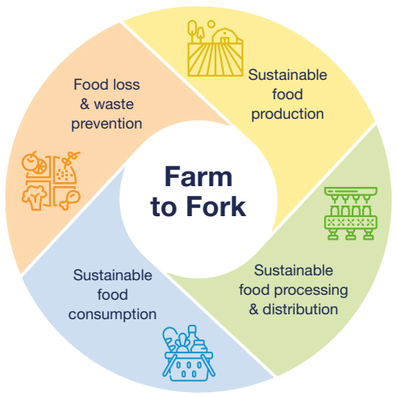
- ALL MATURITIES
- CLASSIC HYBRID
- HERBICIDE TOLERANT
- CLUBROOT TOLERANT
- SAFETY+ GENETIC LABEL

Researching agroecological solutions for oilseed rape

Farm-to-Fork European strategy (F2F), which is considered at the heart of the **Green Deal**, aims to reduce by 50%:
a) the overall use and risk of chemical pesticides;
b) the use of hazardous pesticides.

At the same time, the F2F strategy aims to reduce nutrient losses in the soil by at least 50%, while ensuring no deterioration in soil fertility. And this should **reduce the use of fertilisers** by at least 20%.

ACT TOGETHER FOR A CHANGING AGRICULTURE



Aligning with these F2F objectives, MAS Seeds® has launched a dedicated **research program for agroecological solutions** in oilseed rape (OSR). This research aims to boost oilseed rape agroecosystem to ensure yield security while respecting the objectives of the European Green Deal and the new Common Agricultural Policy 2023-2027 (CAP).

NAME OF TRIALS	OBJECTIVE	HOW
SAFETY+	Limit the use of insecticide in autumn.	Select hybrids with combined characteristic that mitigate impact of autumn insects on the yield.
Association of 2 hybrids	Limit the use of insecticide in spring.	Associate the hybrid of interest (90%) with an earlier flowering one (10%) that will attract pollen beetles and thus reduce their impact on the yield of the hybrid of interest.
Companion plants	Limit the use of insecticide in autumn and reduce nitrogen fertilisation by 30 kg/ha.	Associate oilseed rape with legumes which will participate in its fertlisation and have a confusing effect on insects during the fall.
Nitrogen efficiency	Reduce nitrogen fertlisation.	Select hybrids with a better use of nitrogen with less yield loss in low nitrogen situation.

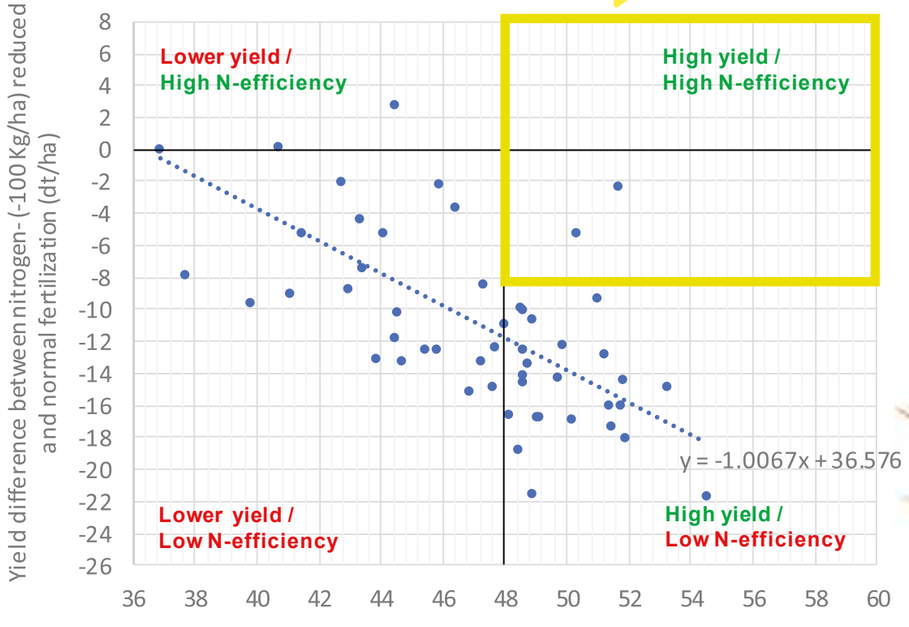

Use of companion plants


Association of 2 hybrids


SAFETY+ trials

RESULTS OF NITROGEN TRIALS 3 YEARS IN 2 LOCATIONS IN FRANCE

"We select better nitrogen efficient hybrids with lower yield losses under reduced fertilisation."



Source: R&D Trials 2019-2023, France.

SAFEGUARD THE YIELD OF YOUR OILSEED RAPE

- Better early vigour until the 4 leaf stage
- Strong development before winter
- Higher tolerance to autumn insects

SAFETY+ hybrids selection

Global warming, drought and heat make sowing conditions increasingly difficult and uncertain for oilseed rape. This has 2 main consequences:

- Later sowing in September results in a difficult emergence.
- Difficult growth at early stages which leads to a more sensitive oilseed rape to autumn insects, especially Flea Beetle.

As Europe is reducing and even stopping certain active insecticidal molecules, genetics become the main source of mitigation for yield impact. Indeed the SAFETY+ portfolio offers varieties with combined characteristics that have a high effect on this mitigation:

+5% of plants at 4 leaf stage*

Quick development to pass the insect sensitive stage as quickly as possible (before the 4 leaf stage).

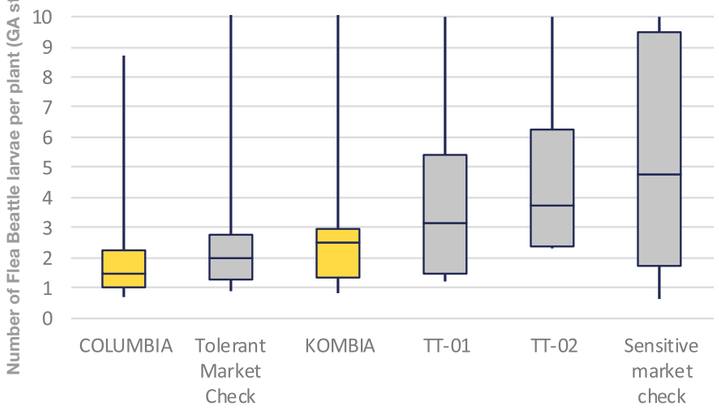
INFECTED PLANTS

+10% to 20% of biomass volume before winter*

High biomass production before winter to avoid loss of plants even infected by Flea Beetle.

LOSS PLANTS PER HECTAR

2022 and 2023 BERLESE TEST
Counting of larvae on oilseed rape
(4 locations in France)



SAFETY+ hybrids have the best tolerance to autumn insect available on the market.

SAFEGUARD THE YIELD OF YOUR OILSEED RAPE

- Better early vigour until the 4 leaf stage
- Strong development before winter
- Better chances to survive the winter

SAFETY+ hybrids selection

Global warming, drought and heat make sowing conditions increasingly difficult and uncertain for oilseed rape. This has 2 main consequences:

- Later sowing in September which causes difficult emergence.
- Difficult growth at early sensitive stages which exposes oilseed rape to frost.

In the context of late sowing, reaching the 8 leaves is critical to ensure maximal winter hardiness. The SAFETY+ portfolio offers varieties with combined characteristics that give the best odds to win this race against time:

+5% of plants at 8 leaf stage*

Good early vigour and quick development: key to reach the 8 leaf stage as quickly as possible.

QUICK DEVELOPMENT

+0.2 to 0.5 kg/m² of biomass before winter*

Oilseed rape biomass: protects the growing point from frost and therefore limits plant loss during winter.

MORE BIOMASS

SAFETY+ HYBRIDS ARE THE ONLY ONES WE RECOMMEND FOR LATE SOWING

Under late sowing conditions, SAFETY+ hybrids have the best chance of reaching the 8 leaf stage before winter and develop enough biomass to limit losses during the winter.

SAFE LATE SOWING

*Source R&D MAS® Seeds 2018 at 2020.

NEW

MID EARLY | OSR

BYSANCE CL

NO LUXURY BUT IT'S BYSANCE

- **CLEARFIELD STRATEGY**
  to ease the weeding.
- **HIGH YIELD POTENTIAL**
  top yield in continental conditions.
- **SAFE AGRONOMY TO SECURE HARVEST**
  robustness, lodging tolerance, no elongation.

MATURITY & TYPE

Type:	OGU-INRA
Flowering:	Mid Early

OIL CHARACTERITICS

Oil content:	42-44%
Protein content:	38-40%
GLS content:	16-18

DISEASES

Phoma:	7
Sclerotinia stem:	8
Leaf lighting spot:	7
Dry stem:	7

AGRONOMY

Early vigour:	6
Stem elongation:	9
Growth after winter:	Mid early
Pod shattering:	9
Lodging:	9

1-3 sensitive | 4-6 medium – good | 7-9 excellent

GROWING RECOMMENDATIONS

	Optimal conditions	Limited conditions
Adaptation	++++	++++
Density at harvest (Pl/m²)	25-35	30-40

NEW

MID EARLY | OSR

DELRICO

DESIGNED TO PERFORM

- **ADAPTED FOR EARLY SOXING**
  good stem elongation tolerance.
- **EXCELLENT IN CONTINENTAL**
  best in our network.
- **SAFE AGRONOMY**
  robust, no lodging.

MATURITY & TYPE

Type:	OGU-INRA
Flowering:	Mid Early

OIL CHARACTERITICS

Oil content:	43-45%
Protein content:	37-39%
GLS content:	16-18

DISEASES

Phoma:	8
Sclerotinia stem:	8
Leaf lighting spot:	7
Dry stem:	8

AGRONOMY

Early vigour:	7
Stem elongation:	9
Growth after winter:	Mid early
Pod shattering:	9
Lodging:	9

1-3 sensitive | 4-6 medium – good | 7-9 excellent

GROWING RECOMMENDATIONS

	Optimal conditions	Limited conditions
Adaptation	++++	++++
Density at harvest (Pl/m²)	25-35	30-40

MID EARLY | OSR

KOMBIA

A PROFITABLE HYBRID

- **YIELD REGULARITY**
  to achieve your objectives whatever the conditions.
- **SAFETY+**
  to mitigate impacts of insects.
- **TOP YIELD PERFORMANCES**
  to maximise efficiency of inputs.

MATURITY & TYPE

Type:	OGU-INRA
Flowering:	Mid Early

OIL CHARACTERITICS

Oil content:	42-44%
Protein content:	34-36%
GLS content:	15-17

DISEASES

Phoma:	8
Sclerotinia stem:	7
Leaf lighting spot:	7
Dry stem:	7

AGRONOMY

Early vigour:	8
Stem elongation:	9
Growth after winter:	Mid early
Pod shattering:	9
Lodging:	8

1-3 sensitive | 4-6 medium – good | 7-9 excellent

GROWING RECOMMENDATIONS

	Optimal conditions	Limited conditions
Adaptation	++++	+++
Density at harvest (Pl/m²)	30-40	35-40

MID EARLY | OSR

NYMPHEA

STABILITY AT HIGH PERFORMANCE

- **VERY HIGH YIELD POTENTIAL**
  more than 70 dt/ha in our R&D network.
- **ADAPTIVE**
  high performance in all conditions.
- **SAFETY+ FOR YIELD SECURITY**
  good early vigour and complete disease profile.

MATURITY & TYPE

Type:	OGU-INRA
Flowering:	Mid Late

OIL CHARACTERITICS

Oil content:	41-43%
Protein content:	36-38%
GLS content:	13-15

DISEASES

Phoma:	8
Sclerotinia stem:	8
Leaf lighting spot:	8
Dry stem:	8

AGRONOMY

Early vigour:	8
Stem elongation:	8
Growth after winter:	Mid late
Pod shattering:	
Lodging:	9

1-3 sensitive | 4-6 medium – good | 7-9 excellent

GROWING RECOMMENDATIONS

	Optimal conditions	Limited conditions
Adaptation	+++	++++
Density at harvest (Pl/m²)	30-35	35-40

ALFALFA

MAS ALFA products portfolio ensure stability at high performances

A NEW GENERATION OF ALFALFA VARIETIES

The choice of alfalfa seeds is a very important decision for farmers as it is cultivated for long term hay production (from 3 to 5 years).

Over the past 5 years, alfalfa seed production has been regularly impacted by climate disruptions (droughts, irregular and important rainfalls at harvest) regularly leading to seed shortages for certain varieties. Under these circumstances it is a challenge to ensure the exact varietal composition of the product for all customers.

Our priority is to deliver high performing products whatever their varietal compositions. **To answer this challenge, MAS Seeds® has selected a pool of high performing varieties.**

MAS Seeds® has therefore set up an alfalfa R&D network in several countries: Romania, Russia, Spain and Italy. The main objective is to evaluate and select the best alfalfa varieties.

VARIETY PORTFOLIO

DORMANCY	VARIETIES	NEW VARIETIES
2-3	LUZELLE, LIMORY	LOYALTY
4-5	GALAXIE, NUTRIX, RIANNA, MILKYMAX	EXAGONE
6-7	OCCITANE TEQUILLA	CARMA LETITBY
8-9	SPEEDA	AVIA

After 4 years of exploitation, this R&D network bear fruits and the fields have been terminated. We have renewed our varietal portfolio for each dormancy group with improvements on agronomic characteristics.

We have also created a new range of products in dormancy 3 with two medicago varia varieties with LIMORY and LOYALTY, a cross between medicago sativa which brings disease tolerance and productibility and medicago falcata which brings frost tolerance, fodder quality and later regrowth after winter.

This unique cross brings new alfalfa type designed to maximize the productibility in 2 cuts in June, after the workload in May but before summer drought. Beware in the field, medicago varia has two-colours flowers.

		CHARACTERISTICS						PERFORMANCES					FODDER QUALITY		AGRONOMY			DISEASES & PESTS				RECOMMENDATIONS		
	PRODUCTS	Dormancy	Composition	Persis-tency	Main Harvest Method	Main use	Dehy-dration	Yield potential	Spring produc-tivity	Summer produc-tivity	Autumn produc-tivity	All year long pro-ductivity	Protein content	Digesti-bility	Vigour after sowing	Lodging	Winter-hardiness	Leaf spot	Verticili-um wilt	Anthrac-nose	Nema-todes	Sowing rate kg/ha	Irrigation	PRODUCTS
SINGLE VARIETIES																								**ASSOCIATION OF 2 VARIETIES**
NEW	MAS ALFA 3	3	100% D3 Variety (LUZELLE, LIMORY, LOYALTY)	3-6 years	Cutting	Silage, Hay, Wrapping	Yes	7	9	7	7	7	8	8	9	9	Very hardy	7	8	8	7	20-25 kg/ha	-	MAS ALFA 3
	MAS ALFA 4	4	100% D4 Variety (GALAXIE, NUTRIX, RIANNA or MILKYMAX)	3-6 years	Cutting	Silage, Wrapping, Hay	yes	8	9	8	7	8	8	9	8	9	Very winter hardy	8	7	8	9	20-25 kg/ha	-	MAS ALFA 4
	MAS ALFA 6	6	100% D6 Variety (OCCITANE or LETITBY)	3-6 years	Cutting	Silage, Wrapping, Hay	yes	8	8	8	8	8	9	9	9	8	Winter hardy	9	7	8	9	20-25 kg/ha	-	MAS ALFA 6
	MAS ALFA 8	8	100% D8 Variety (SPEEDA or AVIA)	3-6 years	Cutting	Silage, Wrapping, Hay	yes	9	8	9	9	8	7	8	7	9	Moderately winter hardy	8	8	7	8	20-25 kg/ha	Recom-mended	MAS ALFA 8
ASSOCIATION OF 2 VARIETIES																								**ASSOCIATION OF 2 VARIETIES**
NEW	MAS ALFA DUO 3	3	55% D3 Variety 45% D3 Variety	3-6 Years	Cutting	Silage, Hay, Wrapping	Yes	8	9	6	7	7	8	9	8	8	Very hardy	7	7	7	8	20-25 kg/ha	-	MAS ALFA DUO 3
	MAS ALFA DUO 4	4	55% D4 Variety 45% D4 Variety	3-6 years	Cutting	Silage, Wrapping, Hay	yes	8	9	8	7	8	9	8	8	9	Very winter hardy	8	8	8	9	20-25 kg/ha	-	MAS ALFA DUO 4
	MAS ALFA DUO 6	6	55% D6 Variety 45% D7 Variety	3-6 years	Cutting	Silage, Wrapping, Hay	yes	8	8	9	8	8	9	9	9	8	Winter hardy	9	8	8	9	20-25 kg/ha	-	MAS ALFA DUO 6
	MAS ALFA DUO 8	8	55% D8 Variety 45% D7 Variety	3-6 years	Cutting	Silage, Wrapping, Hay	yes	9	8	9	9	8	8	9	7	9	Moderately winter hardy	8	9	7	8	20-25 kg/ha	Recom-mended	MAS ALFA DUO 8
ASSOCIATION OF 4 VARIETIES																								**ASSOCIATION OF 4 VARIETIES**
	MAS ALFA QUATTRO	4-5	25% D3 Variety 25% D4 Variety 25% D4 Variety 25% D6 Variety	3-6 years	Cutting	Silage, Wrapping, Hay	no	8	9	9	9	9	9	9	8	9	Very winter hardy	9	9	9	9	20-25 kg/ha	-	MAS ALFA QUATTRO

AGROSTART®+MYCO ALFALFA SEED APPLIED SOLUTION

- Inoculation
- Micronutrition
- Mycorrhization

AGRO START+MYCO

300%
PHOSPHORUS INTAKE

AGROSTART®+ MYCO: more than a treatment, it is an innovative seed applied solution

2 INNOVATIVE FORMULAS TO BOOST YOUR ALFALFA SEEDS

The innovative AGROSTART® standard formula includes inoculation and micronutrition to improve field establishment, yield and the quality.

The advanced formula **AGROSTART®+ MYCO** has mycorrhization in addition to boost the alfalfa crop all along the vegetation.
The mycorrhizae **increases phosphorus intake about +300%** (Jansa et al. 2008 New Phytologist).

ACTION	COMPONENT	BENEFITS	READY STANDARD	AGRO START	AGRO START+MYCO
INOCULATION	Rhizobium Meliloti	• Ensure development of nodosity • Higher yield • Higher protein fodder	✓	✓	✓
MICRONUTRITION	Major and trace elements	• Improve alfalfa establishment • Higher yield for 1st cut		✓	✓
MYCORRHIZATION	Glomus intraradices	• Higher yield • Better regularity over time & space • Higher stress resistance and better sustainability			+
				+6,3% protein yield **+4%** crop yield*	**+11,5%** protein yield **+6,5%** crop yield*

*MAS Seeds® & CERIENCE R&D data, trials conducted on 4 locations (France, Spain, Poland, Romania) comparison to untreated seeds.

OPT FOR AN ADVANCED FORMULA WITH MYCORHIZATION

AGROSTART®+ MYCO with **MYCORRHIZATION** enhances the nutrients absorption ability of alfalfa therefore bringing the following benefits**:**

- Better stress resistance (salt, drought, cold).
- Higher and more stable yield over 4 years of cultivation.
- Better fodder quality, higher protein content.
- Better vigour and growth.

The seed applied innovation for alfalfa

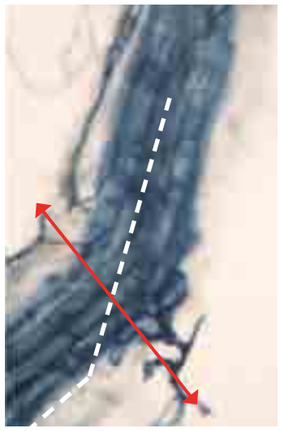
AGROSTART®+ MYCO

AGROSTART®+ MYCO is a new seed applied solution with a triple mode of action:

1. Inoculation
2. Micronutrients
3. Mycorrhization

The AGROSTART®+ MYCO completes AGROSTART® seed application with [illegible] fungi that creates a mycorrhizal-plant symbiosis.

The symbiosis takes place in the soil between the fungi and the alfalfa roots. It is stimulated by the presence of rhizobium and takes around 1 year to set up and to provide its positive effects.



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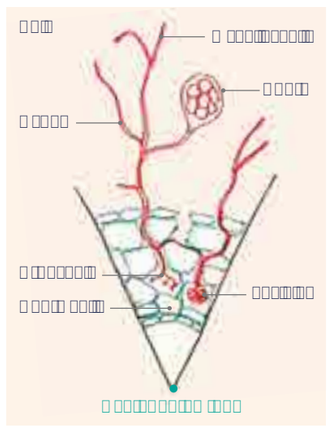


[illegible]

THE BENEFITS OF MYCORRIZHAL SYMBIOSIS FOR ALFALFA

The symbiosis between [illegible] and alfalfa benefits for both species:

- Alfalfa provides food and shelter for the fungus: carbon compounds (=simple sugars), some amino-acid and shelter for the fungi which ensure its survival and growth.
- In return the fungus shares its roots which greatly enhances the alfalfa's ability to absorb nutrients, especially phosphorus (N, P, K, Ca, Mg, S, Cu, Zn, Mn, Fe) and also water. Alfalfa requires high quantities of phosphore and the mycorrhizae increases **phosphorus intake about +300%***.

* Jansa et al. 2008 New Phytologist.

AGROSTART®+ MYCO

300%
PHOSPHORUS INTAKE

THE BENEFITS FOR FARMERS

The enhanced absorption ability of alfalfa with AGROSTART®+ MYCO produces following benefits:

- Better stress resistance (salt, drought, cold).
- Higher and more stable yield over 4 years of cultivation.
- Better fodder quality, higher protein content;
- Better vigour and growth.
- Higher stability of soil structure.

SEED APPLICATIONS ON MAS ALFA DUO 4 RESULTS

	Average dry matter yield	Average % TNC*/kg/DM	Protein yield/ha	Protein added value/ha Soybean cake 350 €/t
Untreated (control)	**100**% 12,4 t/ha	23,1%	**100**% 2 864 kg	**0** €
S.A.S READY	**100**% 12,4 t/ha	23,6%	**102,2**% 2 926 kg	**+144** €
AGROSTART	**104**% 12,9 t/ha	23,6%	**106,3**% 3 044 kg	**+420** €
AGROSTART+MYCO	**106,5**%	**24,2**%	**111,5**%	**+771** €

* TNC = Total Nitrogen Content MAS Seeds® & CERIENCE R&D data, trials conducted on 4 locations (France, Spain, Poland, Romania).

NEW

DORMANCY 2-3 | MIX OF 2 VARIETIES

MAS ALFA DUO 3

THE BEST PRODUCTIVITY
IN A 3 CUT RYTHM

- **DORMANCY 3**
  winter hardy.
- **DESIGNED TO MAXIMIZE PRODUCTION IN 3 CUTS**
  harvest in June, after May workload and before summer drought.
- **ASSOCIATION OF MEDICAGO VARIA**
  better leaves/stem ratio.

COMPOSITION & USE

Product type:	Mix of 2 varieties
Variety 1:	55% (Dormancy 3)
Variety 2:	45% (Dormancy 3)
Persistency:	3-6 years
Main harvest method:	cutting
Main use:	Silage, Wrapping, Hay
Dehydration:	Suitable

PERFORMANCES

Yield potential:	8
All year long productivity:	7

FODDER QUALITY

Protein content:	8
Digestibility:	9

AGRONOMY

Vigour after sowing:	8
Lodging:	8
Winter-hardiness:	Very hardy

1-3 sensible I 4-6 average - good I 7-9 excellent

DISEASES & PESTS

Leaf spot:	7
Verticiium wilt:	7
Anthracnose:	7
Nematodes:	8

SOWING DENSITY

Sowing rate: 20-25 kg/ha

MAS ALFA DUO 3 is a unique association of 2 medicago varia varieties, a cross between medicago sativa and medicago falcata.

PACKAGING **25 kg**

DORMANCY 4-5 | MIX OF 2 VARIETIES

MAS ALFA DUO 4

THE REFERENCE ASSOCIATION
TO SECURE YIELD IN EVERY
CONDITIONS

- **OUTSTANDING YIELD**
  through a symbiosis between 2 varieties.
- **RELIABILITY FOR YIELD AND QUALITY**
  with high disease tolerance.
- **EXCELLENT IN PROTEIN AND DIGESTIBILITY**
  resulting high value forage harvest.

COMPOSITION & USE

Product type:	Mix of 2 varieties
Variety 1:	55% (Dormancy 4)
Variety 2:	45% (Dormancy 4)
Main use:	Silage, Wrapping, Hay
Dehydration:	Suitable

PERFORMANCES

Yield potential:	8
All year long productivity:	8

FODDER QUALITY

Protein content:	9
Digestibility:	8

AGRONOMY

Vigour after sowing:	8
Lodging:	9
Winter-hardiness:	Very hardy

1-3 sensible I 4-6 average - good I 7-9 excellent

DISEASES & PESTS

Leaf spot:	8
Verticiium wilt:	8
Anthracnose:	8
Nematodes:	9

SOWING DENSITY

Sowing rate: 20-25 kg/ha

The association of two elite varieties selected for their adaptability and high protein content make **MAS ALFA DUO 4** adapted for farmers looking for high forage quality.

PACKAGING **25 kg**

DORMANCY 6-7 | MIX OF 2 VARIETIES

MAS ALFA DUO 6

SECURE HIGH YIELD AND QUALITY IN EVERY CONDITION

- **HIGH YIELD POTENTIAL**
  in every condition thanks to the combination of two varieties.
- **AN OUSTANDING QUALITY**
  due to a very good protein content and digestibility.
- **RUSTICITY**
  association of two varieties tolerant to disease.

COMPOSITION & USE

Product type:	Mix of 2 varieties
Variety 1:	55% (Dormancy 6)
Variety 2:	45% (Dormancy 7)
Main harvest method:	Cutting
Main use:	Silage, Wrapping, Hay
Dehydration:	Suitable

PERFORMANCES

Yield potential:	8
All year long productivity:	8

FODDER QUALITY

Protein content:	9
Digestibility:	9

AGRONOMY

Vigour after sowing:	9
Lodging:	8
Winter-hardiness:	Hardy

1-3 sensible I 4-6 average - good I 7-9 excellent

DISEASES & PESTS

Leaf spot:	9
Verticiium wilt:	8
Anthracnose:	8
Nematodes:	9

SOWING DENSITY

Sowing rate: 20-25 kg/ha

OCCITANE brings high yield potential and high protein content to the mix. TEQUILLA brings productivity and quality thanks to its high protein content and good leaf/stem proportion.

PACKAGING 25 kg

DORMANCY 4-5 | MIX OF 4 VARIETIES

MAS ALFA QUATTRO

THE UNIQUE ASSOCIATION OF 4 ELITE VARIETIES

- **HIGHER ALL YEAR LONG PRODUCTIVITY**
  thanks to the association of different dormancies.
- **BETTER TOLERANCE TO PESTS**
  thanks to the genetic diversity in the field.
- **BETTER TOLERANCE TO CLIMATIC STRESS**
  varities not at sensitive stage at the same time.

COMPOSITION & USE

Product type:	Mix of 4 varieties
Variety 1:	25% (Dormancy 3)
Variety 2:	25% (Dormancy 4)
Variety 3:	25% (Dormancy 4)
Variety 4:	25% (Dormancy 6)
Main use:	Silage, Wrapping, Hay
Dehydration:	Not suitable

PERFORMANCES

Yield potential:	8
All year long productivity:	9

FODDER QUALITY

Protein content:	9
Digestibility:	9

AGRONOMY

Vigour after sowing:	8
Lodging:	9
Winter-hardiness:	Very hardy

1-3 sensible I 4-6 average - good I 7-9 excellent

DISEASES & PESTS

Leaf spot:	9
Verticiium wilt:	8
Anthracnose:	8
Nematodes:	9

SOWING DENSITY

Sowing rate: 20-25 kg/ha

MAS ALFA QUATTRO associate 4 elite varieties from 3 different dormancies. The genetic diversity in the fields reduce the impact of climatic and biotic stress as the varieties will answer differently and never be all together at the sensitive stage. The use for dehydration can be difficult as the varieties will not be ready for harvest alt the same time.

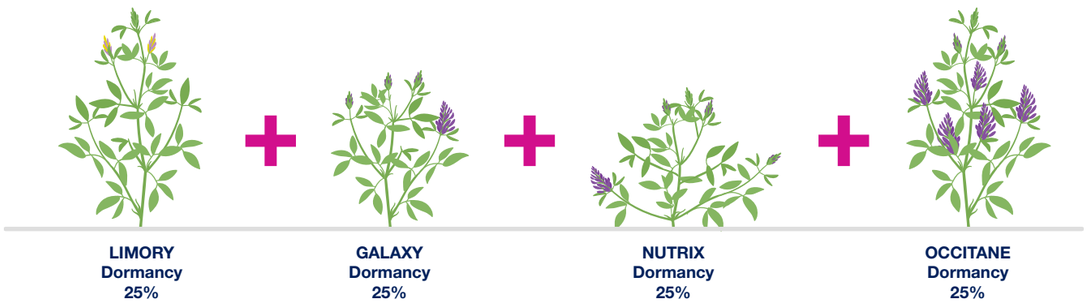
PACKAGING 25 kg

MAS ALFA QUATTRO

The winning association of 4 varieties

MAS ALFA QUATTRO

MAS ALFA QUATTRO is the unique association of 4 elite varieties from dormancy group 3 to 6:



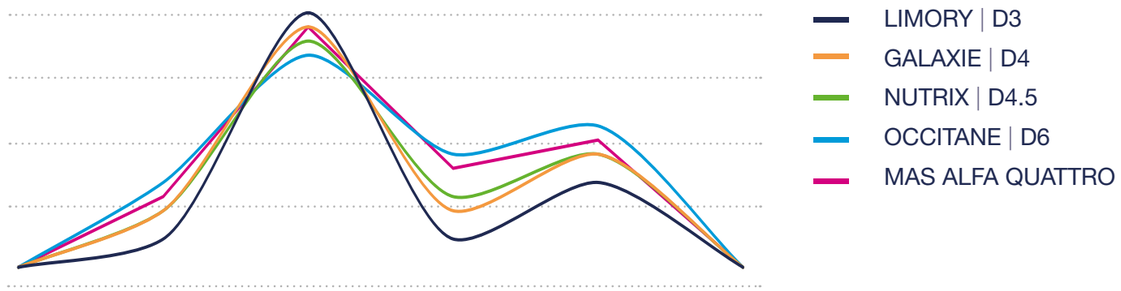
THE BENEFITS OF COMBINING 4 VARIETIES

The association of 4 varieties increases the diversity in the field:

- **Better disease tolerance** by combining tolerant varieties that give a barrier effect.
- **Better drought tolerance** as varieties never reach the most sensitive stage at the same time.
- **Higher stability of forage produced** by combining varieties with different leaf/stem ratios and protein content at harvest.
- **Regular forage production** throughout the year.
- **Higher soil coverage** and less impacted by weeds thanks to combining varieties with different morphologies (erected, semi-erected).


LIMORY is a [illegible] alfalfa

Productivity of the different varieties over the year



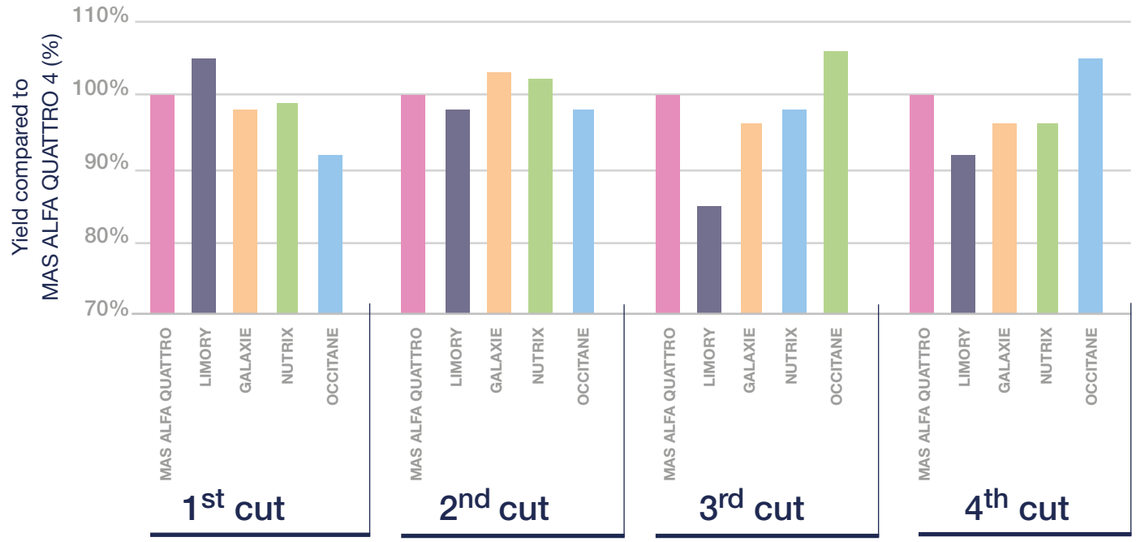
THE BENEFITS FOR FARMERS

The association of 4 elite varieties in MAS ALFA QUATTRO produces the following benefits:

- Higher yield: Higher and more stable yield throughout the year.
- Higher and more stable yield over 4 years of cultivation.
- Higher yield in stressful conditions.
- Better fodder quality, higher protein content.

Regrowth after winter on 8th of march in France

Associating varieties improve regularity of production over the year



MAS Seeds® R&D data, trials conducted on 4 locations (France, Romania), data for 4th cut only when possible.

AGRO-SERVICES

- Measure
- Diagnose
- Advise

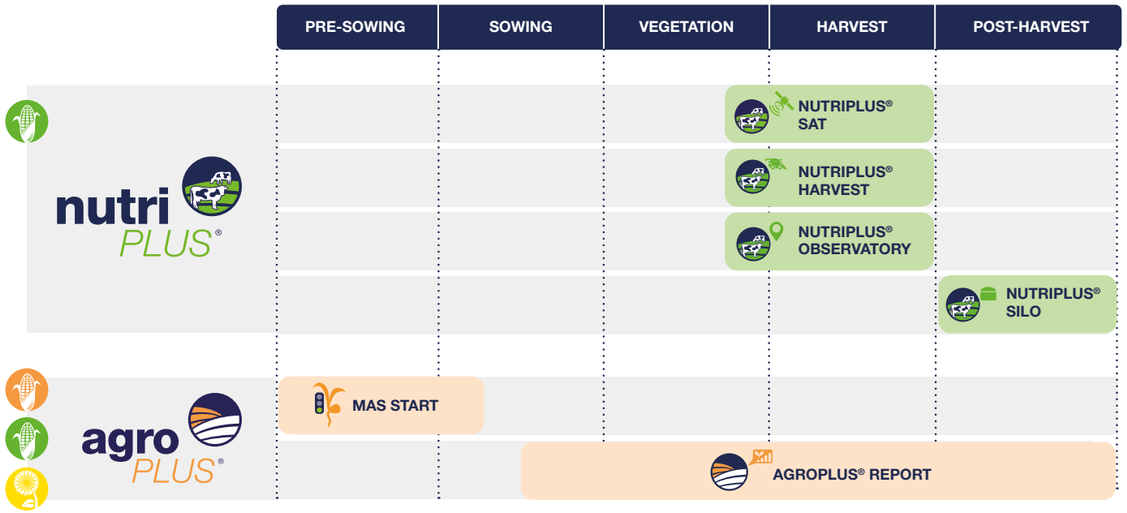
Through our ambition **«Act together for a changing agriculture»**, MAS Seeds® aligned with the European Commission directives to reduce in 2023 greenhouse gases by at least 55%. The ambition for sustainability is not only translated by an evolution of the products we offer but also in regards to our agro-services offer.

Our agro-services offer aims to support farmers in the process of adapting their crop practices and make them more sustainable. Furthermore through agro-services, **we strengthen our relationship with our customers on the field to help them make the best decisions all along the campaign, optimising their crop practices and improving their profitability.**

New technologies in agriculture allows our models and services to be more precise, more accessible and easier to use for farmers. Our agro-services use this new technology to adapt to the different types of customers needs, whether they are farmers or distributors, if they grow maize or sunflower, or other crops from sowing to harvest.

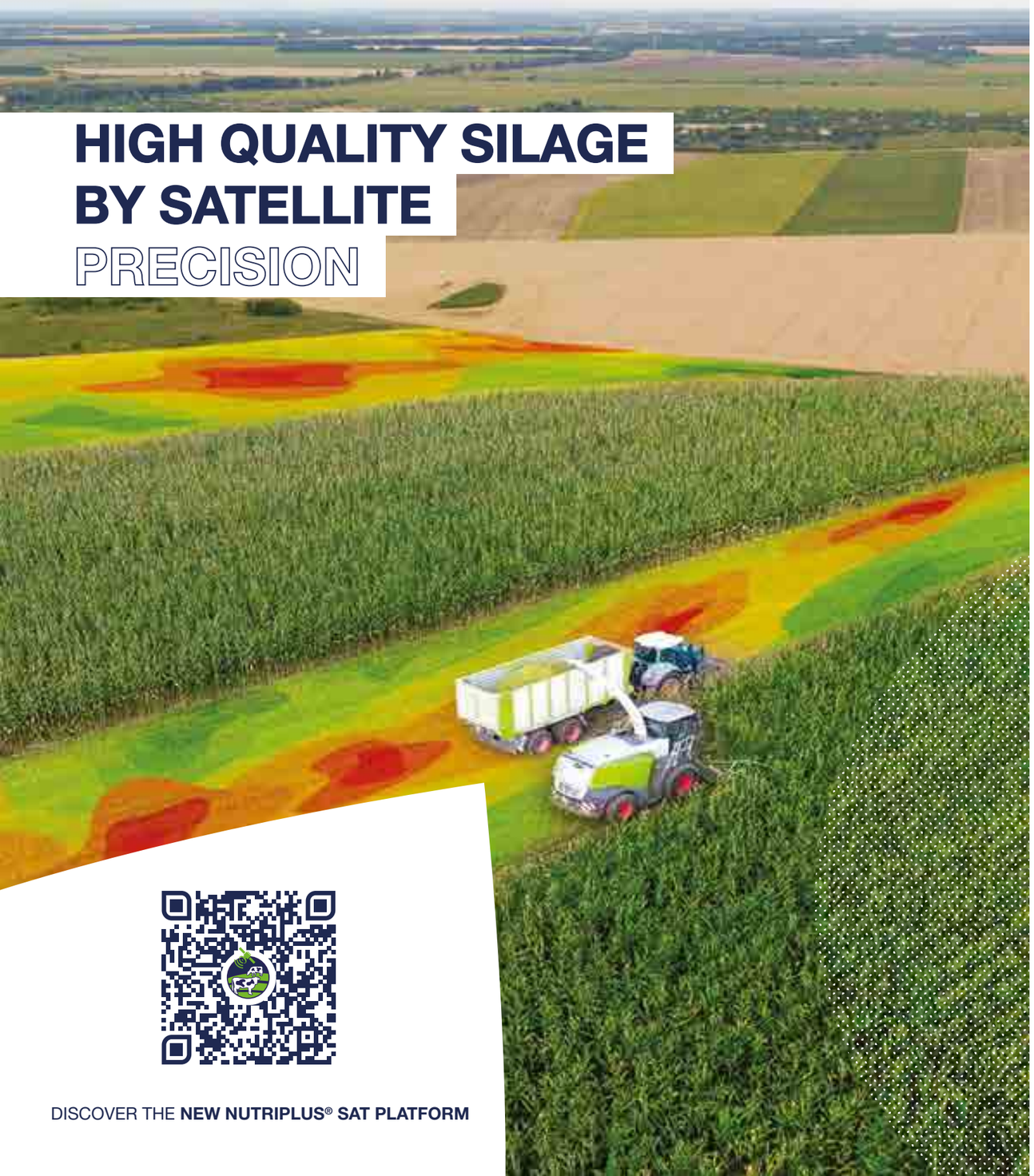
NUTRIPLUS® and AGROPLUS®

- **NUTRIPLUS® services** help dairy farmers get a better forage autonomy and increase their nutrition efficiency. The services provide additional diagnostics and decision support for **silage maize** growers.
- **AGROPLUS® services** are dedicated to all field crop producers to increase their yields in a sustainable way. The agro-services help decision making for most of MAS Seeds® crops; **grain or silage maize, sunflower, oilseed rape and alfalfa.**



nutri PLUS® SAT

HIGH QUALITY SILAGE BY SATELLITE PRECISION



DISCOVER THE **NEW NUTRIPLUS® SAT PLATFORM**

The NUTRIPLUS® SAT service is the association of satellite image technology and MAS Seeds® agronomic expertise to monitor silage maize maturity, optimising both harvest timing and silo quality.

FOR FARMER

REPORT & MAIL

HARVESTING AT THE RIGHT MATURITY STAGE IMPROVES SILAGE QUALITY

Two out of three farmers do not harvest at the right stage. Harvesting the silage maize at the right maturity stage (between 32-35% dry matter) is the key objective for dairy farmers. It optimises:

- Compaction and conservation which can reduce **by 8% silo losses.**
- Yield and silage nutritive value which can increase incomes from **100-200 € per cow and per year.**

nutri PLUS® SAT

Plant Quality + **Harvest Quality** + Fermentation Quality

Silage Quality

OPTIMISE SILAGE HARVEST WITH NUTRIPLUS® SAT

The service helps dairy farmers anticipate and optimise silage harvest using satellite technology. Every 7 days, farmers receive a PDF report by email containing 3 key elements:

- optimal harvest window;
- a field heterogeneity map;
- personalized advices to optimise harvest.

The agronomic model for mastering satellite-based harvest forecasting has been developed exclusively by MAS Seeds®, based on ten years of R&D and validated in more than 13 countries.

SUBSCRIBE AND START MONITORING

1

GO TO THE NUTRIPLUS® SAT INTERFACE

Scan the QR code on your purchased seed bag.

2

SUBSCRIBE TO THE SERVICE

Create your account and add your fields on the platform.

3

WE MONITOR FOR YOU

Every 7 days, you receive a NUTRIPLUS® SAT report.

nutri PLUS® HARVEST

HIGH QUALITY SILAGE BY IN-FIELD DIAGNOSTICS

The NUTRIPLUS® Harvest service helps optimise harvest quality by forecasting the best harvest window based on plant analysis from your field.

FOR FARMER
FOR DISTRIBUTOR
REPORT & MAIL

DEFINE HARVEST DATE OPTIMISES SILAGE QUALITY

Harvesting the silage maize at the right maturity stage is a key objective for dairy farmers. It guarantees that the **harvest has the best feed value and has a good conservation on the silo** since 2 out of 3 farmers do not harvest at the right stage in silage.

A bad silage quality management can lead to **50** to **250 €/ha losses** or **4000 €/silo*.**

*1 ton of dry matter costs about 100 € to produce (average in France).

nutri PLUS® HARVEST

Plant Quality + **Harvest Quality** + Fermentation Quality

Silage Quality

BENEFIT FROM INFRARED TECHNOLOGY

The XNIR or AGRINIR sensor measures the dry matter (DM) percentage of silage maize directly on the field:

- **Measure:** Direct plant measurement.
- **Precision:** Infra-red technology.
- **MAS Seeds® expertise**: Specific MAS Seeds® calibration on green maize plant.

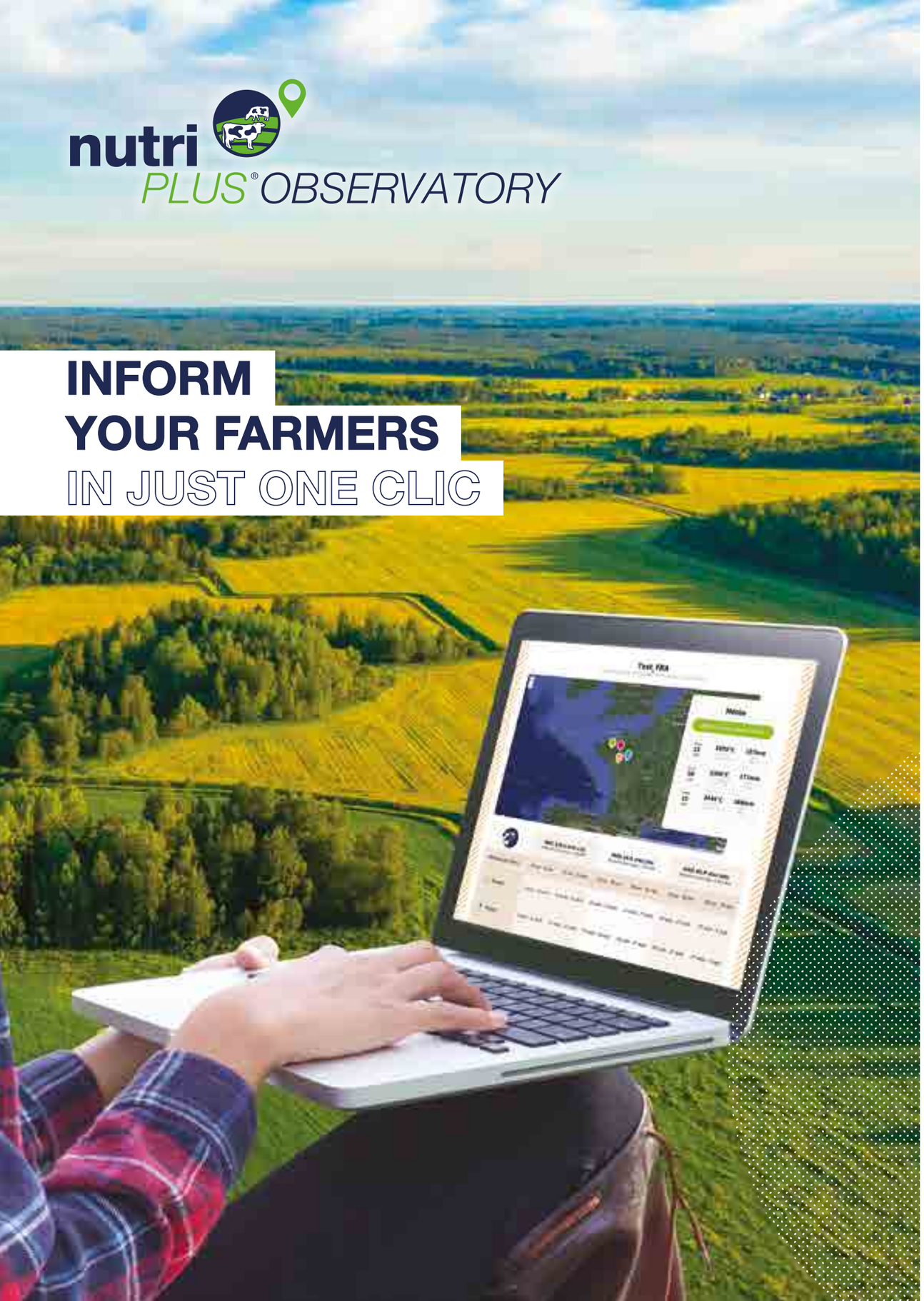
GET RECOMMENDATIONS ON THE BEST HARVEST WINDOW

Our MAS Seeds® experts make a **diagnostic of your plants** thanks to a **high precision sensor**:

1 **MEASURE**
Measure DM% content of your silage maize using infrared sensor directly on the field.

2 **ANTICIPATE**
Forecast of the field DM% evolution.

4 **ADVISE**
Recommend the best harvest period.



With NUTRIPLUS® Observatory, agronomists can easily and quickly inform farmers and technicians about the predicted silage harvest dates in their region.

FOR DISTRIBUTOR

MAIL

MONITOR AND INFORM SILAGE FARMERS ON THE OPTIMAL HARVEST DATE

Harvest date in silage is one of the key parameters to get the most and best silage. Our studies show that 2 out of 3 farmers do not harvest at the right stage in silage.

Poor silage quality management can result in losses of **50** to **250 €/ha losses** or **4000 €/silo***. So, evaluating the situation of a farmer's territory and informing them about their harvest is a key priority for any supplier.

nutri PLUS® OBSERVATORY

Plant Quality + Harvest Quality + Fermentation Quality

Silage Quality

BETTER UNDERSTANDING

View a variety of indicators for silage maize growers in your region (location, weather, sowing date, maturity group) and anticipate the harvest date.

BETTER COMMUNICATION

Communicate easily and quickly with your technicians and farmers on harvest forecast dates.

*1 ton of dry matter cost about 100 € to produce (average in France).

GET AN OVERVIEW OF YOUR TERRITORY

The NUTRIPLUS® Observatory delivers a harvest window forecast per maturity group depending on the selected sowing window in a region. The report combines the following information, representing a region on a table:

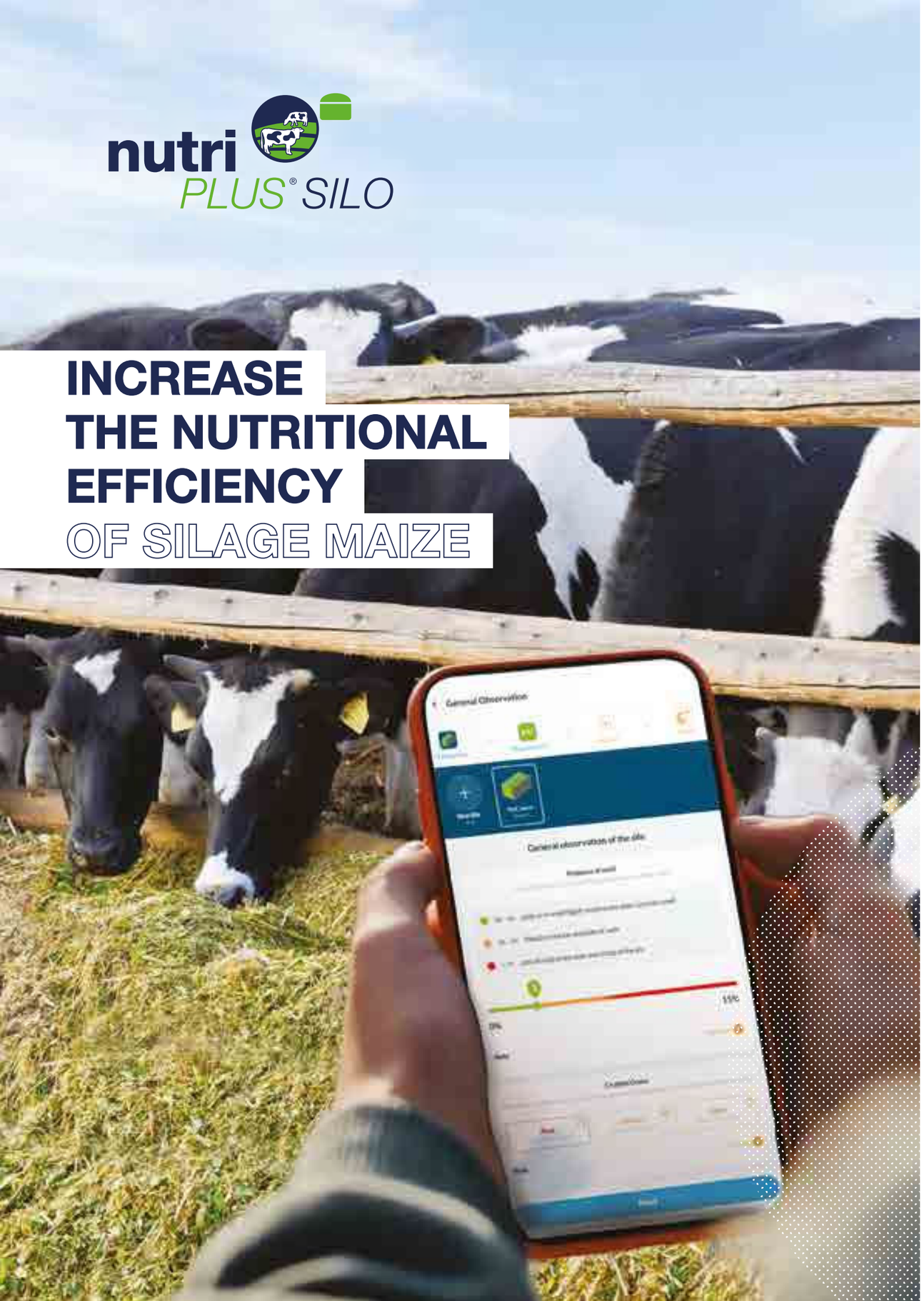
- Locations
- Varieties from different maturities
- Sowing periods

It is possible to identify each harvest maturity situation in a region at a glance thanks to the summary of comparative data.

	MAS 10A Silage maturity at 35%DM		**MAS 26R** Silage maturity at 35% DM		**FREEMAN** Silage maturity at 35%DM	
Sowing period :	15 apr - 30 aug	30 apr - 15 may	15 apr - 30 apr	30 apr - 15 may	15 apr - 30 apr	30 apr - 15 may
Nantes (FR)	5 - 12 august	12 - 21 august	10 - 17 august	17 - 27 august	19 - 27 august	27 aug - 5 sept
Angers (FR)	6 - 12 august	12 - 22 august	11 - 18 august	18 - 27 august	20- 27 august	27 aug - 7 sept
Rennes (FR)	14 - 22 august	22 - 30 august	20 - 28 august	28 aug - 6 sept	30 aug - 7 sept	7 - 19 sept
Loudéac (FR)	20 - 28 august	28 aug - 6 sept	27 aug- 3 sept	3 - 14 sept	7 - 16 sept	16 - 29 sept

nutri PLUS® SILO

INCREASE THE NUTRITIONAL EFFICIENCY OF SILAGE MAIZE



NUTRIPLUS® Silo is a service designed to enhance silo management practices by analysing your silo, identifying losses, and providing recommendations to optimise your next silo.

FOR FARMER
FOR DISTRIBUTOR
REPORT & MAIL

OPTIMISE MY SILO QUALITY

Harvest date in silage is one of the key parameters to get a quality and quantity silage.

2 out of 3 farmers do not harvest at the right stage in silage and bad silage quality management can lead to **50** to **250 €/ha losses** or **4000 €/silo***.

*1 ton of dry matter costs about 100 € to produce (average in France).

nutri PLUS® SILO

Plant Quality + Harvest Quality + Fermentation Quality

Silage Quality

BENEFIT FROM A SILO DIAGNOSTIC

After opening your silo, our **MAS Seeds® expert** makes a complete diagnostic thanks to a **high precision sensor** (XNIR) collecting data:

1. Silo quality **observation**
2. Temperature & compaction **sampling**
3. Feed value **analysis**
4. Calculation of **front attack advancement**

The **XNIR is a sensor to measure maize DM%** with the following characteristics:

- Precision with infra-red technology.
- MAS Seeds® knows how to specifically calibrate your silo.

A PERSONALISED REPORT TO IMPROVE SILO MANAGEMENT

After a complete diagnostic, our **MAS Seeds® experts** make gives you a complete report including personalised advices for better silo management:

REPORT

- Conservation quality
- Feed value
- Silo losses

ADVICES FOR NEXT CAMPAIGN

- Variety advice
- Harvest
- Silo management

The personalised report provides valuable advices to enhance forage quality and adjust your diet accordingly.

SOW AS SOON AS POSSIBLE,
AS LATE AS NECESSARY

FOR FARMER

SMS & MAIL

Proper sowing contributes to 60% of crop yield. MAS Seeds®, through the service MAS START, helps farmers in taking sowing time decisions with peace of mind. The service relies on agronomic knowledge and agro-weather expertise to mitigate weather-related emergence losses.

ENSURE EMERGENCE AND OPTIMISE YIELD

An early sowing, if the conditions are favourable, contributes to yield optimisation thanks to:

- a longer crop cycle;
- fast and homogeneous emergence;
- lower water stress during flowering.

In average, an early sowing **increases grain maize yield by 6 t/ha.**

A PERSONALISED SERVICE

Thanks to our **agronomic knowledge** of seeds and our **agro-weather expertise**, we monitor fields during the sowing period to advise the best personalised sowing window. This forecast is possible thanks to the following of different key agro-weather parameters specific for sowing: soil temperature, dynamic of emergence, frost risk, cumulative rainfall etc.

1

PRE-START ALERT

Alerted within the 10 days prior of the 1st favourable sowing window: “Sowing conditions will soon favorable”.

2

START ALERT

Alerted at the beginning of the favourable sowing window: “Start sowing today”.

INVESTMENTS IN AGRONOMY AND TECHNOLOGY

AN INSURANCE POLICY TO GUARANTEE PEACE OF MIND

EMERGENCE INSURANCE*

If sowing is done within the 7 days after the start alert and emergence losses** are observed;

→ **FREE SEEDS for resowing**

* Available only in selected countries for maize and sunflower seeds.

** Emergence losses: maize > 20%; sunflower > 30%.

agro PLUS® REPORT

GET THE BEST OUT OF OUR VARIETIES WITH OUR AGRONOMIC EXPERTISE

The AGROPLUS® report consists of a complete analysis of your field with cultural advices in order to optimise your crop operations and reach the yield potential of MAS Seeds® varieties. The reports are created by your MAS Seeds® technician and sent to you by email 3 times during vegetation.

FOR FARMER

REPORT

REACH THE POTENTIAL OF OUR VARIETIES

Crop yield can be explained at **54%** by crop operations: sowing time or density, soil preparation, fertilisation, harvest, etc.

To optimise crop practices, it is necessary to understand and analyse the specific conditions of the field (soil, weather, constraints…) and make the most adapted crop practice choice.

Factors influencing yield*

54% Crop practices

27% Weather

19% Varieties

* Source: University of Illinois Crop Physiology science

PERSONALISED AGRONOMIC REPORTS

Three agronomic reports are sent by email in a PDF file at three key periods of the crop cycle:

1. post-emergence;
2. post-flowering;
3. post-harvest.

These 3 reports combine field observations following your MAS Seeds® technician visit and agro-weather analyses taking into account the field conditions:

OBSERVATIONS

Notes and pictures of the field taken during your MAS Seeds® technician visits.

CROP OPERATIONS

A summary of the field crop operations: sowing date, density, treatment, etc.

AGRO-WEATHER INDICATORS

Specific indicators of the analysed period are integrated into our reports to understand the observations made. For example: sowing conditions, weather indicators for a specific physiological period, etc.

PERSONALISED ADVICES

Your MAS Seeds® technician adds personalised advices to your report based on the elements analysed before.

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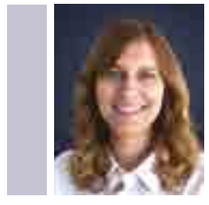

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Notes

Notes

ACT TOGETHER FOR A CHANGING AGRICULTURE

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