

General Catalogue

2019/20



PADANA  SEMENTI®

MAKING BETTER SEEDS



COMPANY

The slogan "Preparing tomorrow, every day!" expresses our daily commitment to improvement. This is why, after 100 years' history, the company continues to grow and maintain its focus on products, ideas and services that are constantly more innovative.

The sectors in which Padana Sementi Elette currently works with growing success, as well as forage seeds, are seeds for lawns and technical grassing, forage and grain sorghum, energy crops and cover crops.

RESEARCH:

Constant investments are made in the company's research and in partnerships with Research Institutions, to be able to constantly improve and update the varieties and skills offered in each sector.

QUALITY CONTROL:

This is provided on two levels:

- in all production and company processes due to the ISO 9001 certified management system,
- in every individual lot of seeds that comes onto warehouse through the internal laboratory that has CRA-SCS certification. In this way customers are only supplied with products that meet the highest quality standards.

PARTNERSHIPS:

Over the years a solid network of partnerships has been built up with Italian and foreign institutions and companies that provides access to the most recent and best genetic materials to be developed and tested in our experimental programs.

CUSTOMER SERVICE AND ASSISTANCE:

Customer satisfaction is a key part of the company philosophy. Daily communication with distributors, training through seminars and field days and technical assistance pre- and after-sales, are some of the methods used to guarantee the most complete service.

Padana Sementi is a company with certified quality management system

UNI EN ISO 9001



Registration Number: IT-45550





CATALOGUE

This catalogue aims to be a work and consultation tool for the main operators in this sector: growers, distributors and public officials.

The aim is not only to list the wide range of products, but particularly to offer farmers and especially zootechnical companies the best solutions for agriculture that is increasingly sustainable.

THIS CATALOGUE COMPRISES DIFFERENT PARTS:

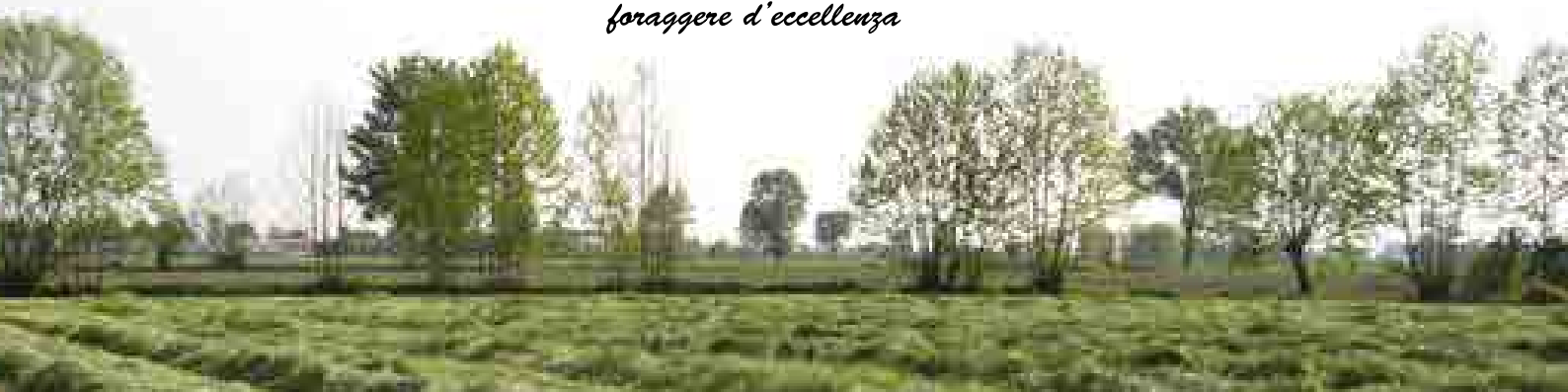
- The first part describes spring-summer sowing crops and the relative proposals.
- The second part deals with autumn sowing crops with suitable products for all Italian environments.
- The third part describes the forage and grassland mixtures that PSE has developed over many years' research.
- The new chapter on cover crops opens up to new practices for a sustainable agriculture concept that will be increasingly important.

THE PSE CATALOGUE IS COMPLETED BY SPECIFIC LEAFLETS AND BROCHURES FOR THE DIFFERENT SECTORS:

- TOP CLASS catalogue for green professionals
- TOP GREEN catalogue with the complete range of mixtures and essences for all lawn requirements
- The Sorghum Guide, an essential and complete reference for this crop
- The Cover Crop catalogue



*Le Stagioni
del Sole
foraggiere d'eccellenza*





SEEDS AND SOLUTIONS FOR ORGANIC FARMING

Organic farming is born with the objective of creating a highly sustainable development model for the protection of: environment and territory, biodiversity, consumer and animal welfare. The basis on which this method of production is based can be summarized in the following points:

- **Food safety and healthiness**, resulting from the non-use of synthetic chemicals.
- **Reducing the impact of agriculture on soil, air and water**. The biological method aims at minimizing the release of residues into the environment, loss of soil fertility, loss of biodiversity of the agroecosystem and energy consumption.
- **The total exclusion of GMO crops**.
- **Strict control and certification** of the whole production process by independent bodies to ensure maximum traceability to the consumer from the field to the point of sale.

At global level, the trend of growing superficial for organic farming continues: over the past 15 years, this method has quadrupled surfaces, albeit with different trends in the various geographic areas.

As far as Italy is concerned, it should be stressed that it is currently the second country in Europe for biologically managed areas, and that the share of organic farming is over 10%.

Another interesting piece of information on the national scene is that there is a steady increase in this sector: as an example from 2012 to 2013 there has been an increase in dedicated surfaces of 13%!

Padana Sementi Elements works in the field of this sector, aiming to increase the supply of certified organic seeds. The ORGANIC registered trademark marks the products for which Certified seed is available Bio of origin both national and foreign.

In addition to seeds, the company also proposes specific rizobes for various leguminous (useful for optimizing nitrogen fixation in the soil) and seeds already mixed with mycorrhizae for the benefit of greater plant rooting and healthiness.

Seeds marked with the “Organic” brand currently available are:

- Alfalfa: CUORE VERDE, LA BELLA CAMPAGNOLA, FRIGOS
- Berseem clover: LEILA
- Cocksfoot: OTELLO
- Buckwheat: ZITA
- Common vetch: PIETRANERA, MARIANNA
- Westervold Italian ryegrass: ANDREA, EXTREM
- Red clover: SPADONE GIGANTE DI SANTA MARTA
- Oat: GNIADY



In addition to these products, the company is able to offer a wide range of solutions for organic farming such as crop protection products (Cover Crop). The full line of these crops is distinct from the brand:



“Biodiversity — the extraordinary variety of ecosystems, species and genes that surround us — is our life insurance, giving us food, fresh water and clean air, shelter and medicine, mitigating natural disasters, pests and diseases and contributes to regulating the climate. Biodiversity is also our natural capital, delivering ecosystem services that underpin our economy. Its deterioration and loss jeopardises the provision of these services: we lose species and habitats and the wealth and employment we derive from nature, and endanger our own wellbeing.” (European Commission, 2011)



Visit PSE plots



EGF Symposium, Alghero 2017, sponsored by Padana Sementi. Visit to the demonstration fields of Sulla, which is mixed with our specific rhizobium.



Cereal trial in Montichiari (BS)



Test plot and post control PSE



Our field test with 54 different sorghum hybrids, seen from 60 m in height



Triticale Leontino in the province of Cremona



Vienna demonstration field 2017: Padana Sementi collaborates with important breeders all over Europe



Personalized forage for our distributor from Paestum (SA)

ALFALFA

(*Medicago sativa*)



FEATURES

It is the quintessential perennial forage species and undoubtedly the most common and well-known in Italy. Alfalfa adapts to all pedoclimatic conditions, but is most productive in deep, clay or medium textured alkaline soils (optimal pH 6.5 - 8). It is not adapted to waterlogging or acidic soils. The different varieties of alfalfa vary due to their dormancy.

DORMANCY

Dormancy is the period of arrested plant growth in the winter, which may last for different amounts of time according to the variety. The National Alfalfa Alliance (USA) has established a scale of dormancy classes ranging from class 1 (dormant varieties) to class 11 (non-dormant varieties). According to the dormancy, the varieties are suitable for different climatic conditions - the most dormant for harsh winter environments and the less dormant for mild winter environments. In Italy the varieties used are comprised between dormancy classes 5 and 8.

USE

The best compromise between yield and quality and the guarantee of the longest lifetime for the grassland is provided by cutting it when it starts to flower. However, often for a more intensive and higher quality use, cutting is performed earlier in the bud stage. Also in this case varieties that regrow quickly and are resistant to frequent cutting must be chosen.

STRENGTHS OF THE SPECIES

- ✓ Formations of monophyte grasslands that can be managed intensively and with high levels of mechanisation
- ✓ It combines high yield and production that is well distributed over the vegetative season, with the high quality of forage produced
- ✓ Hardy and adaptable species, relatively undemanding in terms of agronomic input
- ✓ Excellent effect of soil fertility in mid-long term rotations. Crop diversification is included in the new CAP and in ecological focus areas (EFAs).

BANAT VS

news



DORMANCY: Class 5 (semi-dormant)

CYCLE: Average

FEATURES:

- Tall and leafy plant (50% of leaves by weight at the beginning of flowering)
- Banat VS was selected in Serbia for: high resistance to drought and low temperatures, rapid regrowth and productivity.
- Good tolerance to Verticillium
- Suitable for intensive use, it produces high quality forage
- Ideal for hay frequent cuts and for ensiling.
- Indicated for cold environments and mountain areas.

SOWING RATE:

30 kg/ha pure.
40 kg/ha (4 doses) if mixed with rhizobium Alosca®.

FRIGOS



DORMANCY: Class 6 (semi-dormant)

CYCLE: Average

FEATURES:

- Medium-tall plant with thin stalks and a good leaf-stem ratio
- Suitable for early cutting (intensive use).
- Excellent compromise between hardiness and quality: good yield in fertile plain soils and in drier hilly areas or where the winters are colder
- Good fibre digestibility and protein content

SOWING RATE:

30 kg/ha pure.
40 kg/ha (4 doses) if mixed with rhizobium Alosca®.

DORINE



DORMANCY: Class 6.8

CYCLE: Average

FEATURES:

- French genetic synthesis variety.
- Average sized very leafy plant
- Excellent resistance to lodging, it is suitable for intensive use
- Well distributed production across all cuts.

SOWING RATE:

30 kg/ha pure.
40 kg/ha (4 doses) if mixed with rhizobium Alosca®.

PICENA GR



DORMANCY:

Class 6.5 (semi-dormant)

CYCLE:

Average

FEATURES:

- Semi-erect plant with high leaf-stem ratio
- Suitable for hay, green forage and dehydrating
- Also suitable for mid-high hilly areas as it has excellent resistance to winter frost
- Very persistent, it can quickly regrow after cutting.
- High dry matter yield and protein/ha (see table A and B)

SOWING RATE:

30 kg/ha pure.

40 kg/ha (4 doses) if mixed with rhizobium Alosca®.

CUORE VERDE



DORMANCY:

Class 6.5

CYCLE:

Average

FEATURES:

- Very healthy plant, resistant to the main diseases.
- Chosen in the hilly areas of Central Italy, it therefore withstands high summer temperatures and low winter ones.
- It was particularly selected for organic farming methods, where in the official tests it was the most productive variety in the most suited locations (see table B).

SOWING RATE:

30 kg/ha pure. 40 kg/ha (4 doses) if mixed with rhizobium Alosca®.

VERDOR



DORMANCY:

Class 8 (nondormant)

CYCLE:

Early

FEATURES:

- Particularly suitable variety for areas with Mediterranean climates (southern Italy and islands), where it can grow all year round, if supported by irrigation in the summer.
- Healthy and resistant to diseases.

SOWING RATE:

30 kg/ha pure. 40 kg/ha (4 doses) if mixed with rhizobium Alosca®.

SEQUEL HR



DORMANCY:

Class 9 (nondormant)

CYCLE:

Early

FEATURES:

- Australian variety with marked winter growth activity, optimal for get maximum yields in Mediterranean climates with mild winters.
- Erect plant that facilitates the cutting and drying of the forage.
- Good health: resistant to Colletotrichum trifolii and Phytophthora.

SOWING RATE:

30 kg/ha pure. 40 kg/ha (4 doses) if mixed with rhizobium Alosca®.

Tab. A: Crude protein production (kg ha⁻¹) - Year 2010
Variety Innovation Project - CRPA (Modena)

VARIETY	TOTAL 2010
AUBIGNY	1688,415 B
AZZURRA	2062,465 A
CASALINA	1940,340 A
CRENO	1564,013 B
FRIGOS	1907,851 A
GARISENDA	1943,006 A
LETIZIA	1958,866 A
MINERVA	1755,284 A
MIRANDA	1432,462 C
PICENA GR	2130,084 A
POMPOSA	1928,516 A
PR57Q53	1931,286 A
PROSEMENTI	1857,535 A
VERBENA	1342,473 C
FIELD AVERAGE	1817,328
SIGNIFICANCE	***
C.V.	7,84

Tab. B: Production of dry matter (t/ha) in two locations in central Italy in organic farming conditions (Data taken from I.A. 1/2013)

CULTIVAR	PERUGIA DRY MATTER 3-YEAR PERIOD	GROSSETO DRY MATTER 3-YEAR PERIOD
AZZURRA	14.97	38.86
BEATRIX	16.08	38.24
COSTANZA	12.41	31.35
CUORE VERDE	16.75	40.62
EMILIANA	14.70	37.03
LA TORRE	14.09	35.26
PALLADIANA	14.08	31.31
PICENA GR	16.47	34.57
PR57Q53	15.48	35.58
PROSEMENTI	14.79	37.36
SELENE	15.64	38.64
MIRANDA	13.12	29.91
SURIGHEDDU	16.85	35.55
MSI004	16.16	35.61
MSI006	13.48	30.67
MSI007	13.12	27.45
AVERAGE	14.89	34.88
LSD P <0.05	1.57	3.84

RED CLOVER

(*Trifolium pratense*)



FEATURES

- Leguminous perennial crop with a 3 year duration (the best yield is in the second year).
- Suitable in fertile and cool soils, but also adaptable to shallow acidic and sub-acidic soil. The best pH for the soil is between 6 and 7.5.
- It is used for producing hay, pasture, or silage, usually in intercropping with other leguminous or graminaceous crops for improving the quality and production of the grassland.

Optimal forage quality levels:

Crude protein (% dry matter): 20-23%

MFU: 0.90-0.96

SPADONE GIGANTE DI S. MARTA

TYPE:

Diploid

CYCLE:

Average-early

FEATURES:

- Use: pure or in intercropping in pasture lands for hay production
- Plant with remarkable vegetative development, very leafy.
- Very adaptable variety to Italian climates, it offers the best yield in cool plain environments.

SOWING RATE:

25-35 kg/ha.



ZOJA

TYPE:

Diploid

CYCLE:

Average-early

FEATURES:

- Erect habitus, medium height and large leaves (the leaves are 55% by weight at pre-flowering stage): These features make a great variety for haymaking.
- High quality forage with protein content up to 18.5% protein in hay.

SOWING RATE:

25-35 kg/ha.

SULLA

(*Hedysarum coronarium*)

FEATURES:

Leguminous perennial suitable for Mediterranean climates for the formation of short-lived monophytic lawns (2 years). Very productive in the area, especially in the second year. It is particularly suitable for deep, clayey and calcareous soils. This species performs a great improvement of the soil, even in depth, and is well suited to rotations with grain and graminaceous herbs.



BELLANTE

FEATURES:

- Medium-sized, semi-sized portable plant.
- Extremely thin casings and wires, produces an appetizing, full-bodied fodder.
- Use: grazing, fen, fenced. It is advisable to use it no later than the beginning of flowering to avoid a rapid increase in the spine.
- Sowing time: spring or, in mild areas, in summer.

SOWING RATE: 30-40 kg/ha of shelled seed



NOW AVAILABLE ALOSCA® POWDERED SPECIFIC RIZOBIUM

WHITE CLOVER

(*Trifolium repens*)



FEATURES

- Perennial species that comprises different plant forms, similar in terms of pedoclimatic requirements but with different sizes and uses.
- It generally prefers cool soils with good water availability (due to the superficial nature of its root apparatus). It withstands winter cold very well, but does not withstand high temperatures and drought very well.
- It is also adapted to both acidic and alkaline soils, with soil pH between 5 and 8.
- Its creeping behaviour protects the grassland from more intensive uses and against trampling and allows excellent quality forage to be obtained as it is mainly comprised of leaves (0.96 – 1.00 MFU).

WHITE DUTCH CLOVER

(*Trifolium repens hollandicum* var.)

- It is distinguished by its average size, its resistance to cold and trampling, and by its long-term persistence.
- Excellent for pasture lands also in mountainous and hilly areas

WINTER WHITE

FEATURES:

- Very hardy and productive variety.
- Tolerates summer temperatures well
- Suitable for average duration grasslands (about 3 years)

SOWING RATE:

8-10 kg/ha.

HUIA

FEATURES:

- Average cycle variety, with average sized leaves.
- Vigorous growth forming dense cushions, with excellent competition against weeds.
- Very persistent, it is suitable for long-term grasslands and technical grassing.

SOWING RATE:

8-10 kg/ha.

LADINO WHITE CLOVER

(*Trifolium repens giganteum* var.)

- A plant that stands out due to being very tall (can reach 60 cm).
- This type of clover is used pure in the well-irrigated areas of north Italy, for creating grasslands that can provide up to 8 cuts a year.

FANTASTICO

FEATURES:

- Italian genetics, derived from improvement of populations of the ecotype "Gigante Lodigiano".
- Leafy and high-size plant (40-45 cm). Medium-late maturity.

SOWING RATE:

8-10 kg/ha.

COMPANION

FEATURES:

- Tall variety.
- Compared to other types of Ladino clover it stands out due to its increased resistance to drought.
- Also suitable for light and well-drained soils.

SOWING RATE:

8-10 kg/ha.



COCKSFOOT

(*Dactylis glomerata*)

FEATURES

- Of the graminaceous forage crops, this species is the one that can best combine adaptability and tolerance to stress with the quality of the forage and productivity.
- It has a long-term persistence (7-8 years), hence being suitable as a component of long duration grasslands.
- It is recommended to sow it pure in autumn, by mid-September, to allow establishment before the winter. The plant is slow to become established after sowing.

OTELLO



FEATURES:

- Average cycle
- Medium-tall plant, resistant to lodging.
- Selected by Padana Sementi Elette, starting from an ecotype from the Venetian Prealps. A productive variety has been obtained that is adaptable both to cool climates and summer heat and water stress.
- Long persistence and productive stability.

SOWING RATE:

25-30 kg/ha

AMBA/HARVERSTAR

FEATURES:

- Average-early cycle

SOWING RATE:

25-30 kg/ha

TALL FESCUE

(*Festuca arundinacea*)

FEATURES

- Perennial species with vigorous growth, it has a deep root apparatus and large leaves that tend to be fibrous, giving it long persistence, marked hardiness and remarkable resistance to summer drought (the most resistant of the microthermal graminaceous forage crops).
- Cutting must not be performed at the start of heading so as not to compromise the quality and palatability of the forage.
- Autumn sowing is recommended for the pure seeds (between end of August and end of September). Spring sowing can be performed when intercropping with leguminous crops and must be performed by the end of March.

PALMA

FEATURES:

- Early cycle
- Tall and fast regrowing variety.
- Selected for its productivity and persistence.

SOWING RATE:

30-35 kg/ha

KORA

FEATURES:

- Average cycle
- This variety stands out due to the maximum quality forage compared to other tall fescue varieties.
- Excellent production levels
- Excellent digestibility
- Resistant to stress and winter frost

SOWING RATE: 30-35 kg/ha

MEADOW FESCUE

(Festuca pratensis)

FEATURES

- A plant with average persistence, very resistant to cold, but sensitive to summer drought and high temperatures.
- It produces excellent quality forage that is more digestible than tall fescue.
- Used for mixed pasture lands in cool hilly or mountainous areas.

COSMOLIT

FEATURES:

- Early cycle
- Average sized variety, very persistent
- Good quality parameters.
- The best yields are obtained at the average altitudes of northern Italy.

SOWING RATE:

20-25 kg/ha



PERENNIAL RYEGRASS

(Lolium perenne)

FEATURES

- Graminaceous forage crop suitable for cool and fertile soils.
- Average persistence, quick establishment and regrowth. Ideal plant for pasture.
- Excellent forage quality.
- Like Italian ryegrass it is split into diploid and tetraploid varieties.

PASTORAL

FEATURES:

- Late cycle
- Tetraploid

SOWING RATE:

35-45 kg/ha

MATHILDE/TIVOLI

FEATURES:

- Average-late cycle
- Tetraploid

SOWING RATE:

35-45 kg/ha

GRASSLANDS NUI

FEATURES:

- Early-average cycle
- Diploid

SOWING RATE:

30-35 kg/ha

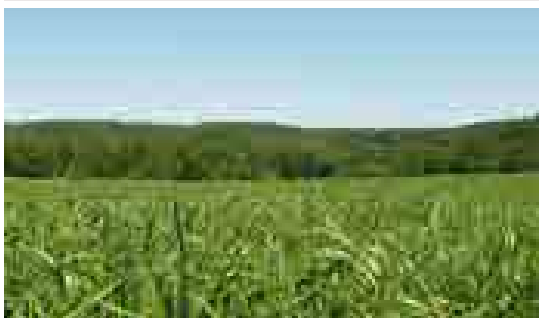


HYBRID RYEGRASS

(*Lolium x hybridum*)

FEATURES

- Interspecific hybrid (*L.perenne* x *L.multiflorum*) that combines the density and persistence of perennial ryegrass with the productivity of Italian ryegrass.
- It can form grasslands with a 3-4 year duration or even longer in optimal conditions.



GALA

FEATURES:

- Average cycle
- Tall and fast regrowing variety.
- Selected for its productivity and persistence.

SOWING RATE:

35-40 kg/ha

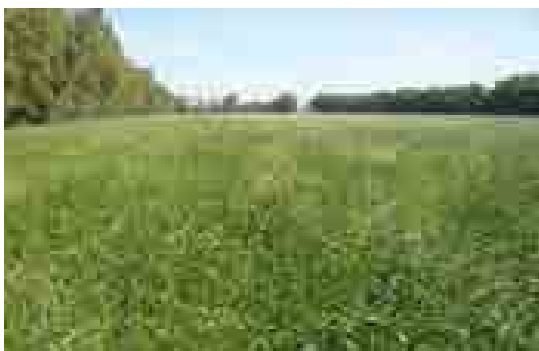
FESTULOLIUM

(x *Festulolium*)

FEATURES

Intergeneric hybrid between Ryegrass and Fescue that is essentially used in intercropping in mixed pastures.

- It produces more than perennial ryegrass with similar quality forage.
- Good persistence and tolerance to stress.



ABERNICHE

FEATURES:

- Average cycle
- Good persistence.
- Expresses the production potential and features typical of Italian ryegrass

SOWING RATE:

35-40 kg/ha

TIMOTHY GRASS

(*Phleum pratense*)

FEATURES

- Productive species with long-term persistence, typical of the cool and well-irrigated environments of the plain and hilly and mountainous areas.
- Not very tolerant to high temperatures and drought
- Excellent quality forage
- Autumn sowing recommended in the plain, spring in cold mountain environments.



ALMA/ANJO

FEATURES:

- Average cycle

SOWING RATE:

10-15 kg/ha, pure

PEARL MILLET

(*Pennisetum glaucum*)

FEATURES

- Summer cycle species that originates from the hot-dry areas of the subtropical belt.
- Very adaptable to different soils, and very resistant to drought, it is most productive in deep soils.
- If harvested at the right time, it can provide remarkable amounts of very high quality forage in terms of protein content and palatability.
- Especially recommended for sheep, cow and horse grazing.
- Never contains toxic substances for the livestock or antinutritional factors.



NUTRIFEED

TYPE: Pearl millet hybrid

CYCLE: Very late

FEATURES:

- The plant can reach remarkable heights and biomass production levels if left to grow, but to the detriment of the quality level.
- High protein content and digestibility in young plants.
- High resistance to temperatures and drought, not particularly susceptible to diseases
- Use: Pasture land, green forage, hay. It can be used for the whole reason without the risk of early heading and therefore loss of quality. For the first grazing it is recommended to wait 45-50 days (plants well established and tillered). For maximum forage quality it is recommended to use it before it reaches 1 m in height (see graphs)

SOWING RATE:

15-20 kg/ha to guarantee dense planting and optimal coverage of the soil. Sowing depth: no more than 2-3 cm.

Sowing period: when soil temperature reaches at least 16°C.

PLATINO BMR

TYPE: Hybrid BMR pearl millet

CYCLE: Medium-late

FEATURES:

- Use: silage, pasture, green forage
- Medium to high plant, with very large leaves, good yield potential.
- Excellent resistance to drought stress.
- High digestibility and high protein content.
- It is recommended to harvest within the boot stage to avoid the loss of protein content.

SOWING RATE: 10-12 kg/ha for silage, 15-20 kg/ha for grazing. Sowing depth: not more than 2-3 cm.

DAILY DOUBLE

TYPE: Pearl millet hybrid

CYCLE: Early (heading starts 60 days after emergence)

FEATURES:

- Use: pasture, hay, green forage. Provides excellent pasture before the plant starts heading.
- The plant is very vigorous with fast growth and great tillering ability.

SOWING RATE:

20-30 kg/ha to obtain thinner plants suitable for hay. Sowing depth: no more than 2-3 cm.

Sowing period: when soil temperature reaches at least 16°C.

PAMPA MIJO BMR

TYPE: Hybrid BMR pearl millet

CYCLE: Medium-late

FEATURES:

- Use: hay, green forage. The first BMR pearl millet on the Italian market: top quality for summer pasture. Superior fibre digestibility thanks to its reduced lignin content.

SOWING RATE:

15-20 kg/ha. Sowing depth: not more than 2-3 cm.

FOXTAIL MILLET

(*Setaria italica*)

FEATURES

- Summer graminaceous crop with fast cycle
- Usually used in second harvest for a single abundant hay cut.
- Withstands summer temperatures well, but needs regular watering to improve the yield.

PANORAMA GIGANTE

CYCLE:

Very early (50- 60 days)

FEATURES:

Tall and thin plant (quick drying)

SOWING RATE:

45-50 kg/ha

MOHA

CYCLE:

Very early (50- 60 days)

FEATURES:

Tall, leafy plant (quick drying)

SOWING RATE:

45-50 kg/ha

SORGHUM

(*Sorghum bicolor*)



FEATURES

Although sorghum is a single botanic species, *Sorghum vulgare* (sin. *Sorghum bicolor*), it is marked by very great genetic variability, which has pushed botanists to split it into different sub-species.

These sub-species, which can be crossbred, correspond to different morphologies and therefore different uses.

- ✓ **S. bicolor ssp. bicolor.** This group includes varieties for **grain**, generally short with strong shoots, well-developed panicles and that do not often lodge.
- ✓ **S. bicolor ssp. sudanense.** This groups together the varieties known as "**Sudan grass**". They have a thin, elastic stalk, a marked tendency towards tillering, fast regrowth and an early cycle. They are particularly suitable as multi-harvest summer forage crops and for hay production.
- ✓ **S. bicolor ssp. saccharatum.** Sweet **sorghums** stand out as they are tall, have large leaves, a large shoot and juicy, sugary pith, poor tillering and regrowing ability and a cycle that tends to be late.
- ✓ **S. bicolor ssp. technicum.** This sub-species, which is known as "broom corn" has long drooping branches, a high fibre content and therefore is not very suitable for use as forage. These plants are traditionally used for making brushes.
- ✓ **Crosses and hybrids of the previous types** have allowed plants to be obtained with very varied features, both from a morphological and agronomic point of view, based on the features of the types used as parental plants.

AGRONOMIC ADVANTAGES

- **Reduced water requirements** and greater water use efficiency due to the set of physiological and drought resistance mechanisms.
- **Lower or no need for plant protection products**
- **Reduced need for fertilisers**
- **Great environmental adaptability:** suitable for all soils, pH from 5.5 to 8.5, good salt tolerance.
- **Good quality forage**, in all conditions
- **High plant health:** sorghum can be grown in areas affected by Pyralid borers and Diabrotica and does not present any risk of mycotoxins.

GRAIN SORGHUM (*Sorghum bicolor x bicolor*)

AG 4E44

CYCLE:

Medium (58 to 60 days from emergency to flowering)

FEATURES:

- Use: grain production.
- White grain, total absence of tannins.
- Type "food grade" sorghum selected for human nutrition: perfect for "Gluten free" industry.
- Grain with high specific weight and high protein content.
- Medium-low height plant (average height 100-110 cm), very stable.
- Semi-open and well exerted panicle.
- Good banquet excerpt.

SOWING RATE: 38-40 plants/m² with precision sowing, 13-15 kg/ha with mechanical seeding machine. Recommended spacing between rows 45-50 cm.
TGW: 28 g

GIAGUARO



CYCLE:

average - late (65 days from emergence to flowering)

FEATURES:

- Use: for grain production
- White grain, no tannin at all
- Plant height 100-110 cm, not susceptible to lodging
- Long and compact panicle.
- Very marked panicle exertion: 15-17 cm.

SOWING RATE:

36-40 plants/m² with precision sowing, equal to 16-18 kg/ha.
Recommended spacing between rows 45-50 cm.
TGW: 30 g

GRAIN SORGHUM (*Sorghum bicolor x bicolor*)

FRISKET

CYCLE:

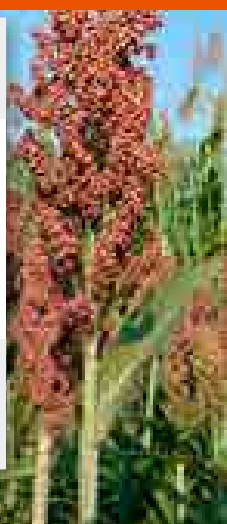
average – early (58 days from emergence to flowering).

FEATURES:

- Use: grain production.
- Orange grain with very low tannin content, good specific weight.
- Strong and compact plant (height 110-120 cm), does not lodge.
- Semi-opened panicle.

SOWING RATE:

34-36 plants/m² (with precision sowing), equal to about 13-16 kg/ha. TGW: 33 g.



MR ECLIPSE

CYCLE: average – late (65 days from emergence to flowering).

FEATURES:

- Plant of low size with semi-compact head.
- Red-orange grain, with very low tannins content
- Low tillering tendency for a more homogeneous maturation.
- Good head exertion.
- Very high yield potential, in particular with early sowing.
- High specific weight of the grain.

SOWING RATE: 34-36 plants/m² (with precision sowing), equal to about 13-16 kg/ha. TGW: 35 g.



MULTI-HARVEST SUDAN GRASS

HERMES

TYPE:

Sudanense x sudanense hybrid


CYCLE:

average - early (62-65 days from emergence to flowering)

FEATURES:

Use: multi-harvest forage for producing hay, banded hay, silage and pasture. Two or three cuts can be obtained per season.

- HI-Gest® hybrid: expresses both the quality advantages of BMR hybrids and the yields (comparable or better) of traditional Sudan grasses.
- Plant: 2.5 m tall, thin stalks that facilitate drying, but not susceptible to lodging. Extraordinarily palatable forage.

- Management: even if it has a low antinutritional factor content, it is recommended to use it after it reaches 50 cm for the best yield and quality ratio. For producing hay the higher investment is recommended and early harvesting at 1.5 m before the boot stage.

SOWING RATE: 20-30 kg/ha, narrow spacing between rows.

TGW: 14 g



MONARCH V

TYPE:

Sudanense x sudanense hybrid


CYCLE:

average - early (60-62 days from emergence to flowering)

FEATURES:

- Use: multi-harvest forage for producing hay, banded hay, silage and pasture. Two or three cuts can be obtained per season.

- Plant: height 2.5 m, leafy and with very thin, elastic stalks, productive in all environments (13% more than Piper). Resistant to lodging.

- Management: low antinutritional factor content. It is recommended to use it after it reaches 50 cm for the best yield and quality ratio. For producing hay the higher investment is recommended and early harvesting at 1.5 m before the boot stage.

SOWING RATE: 20-30 kg/ha, narrow spacing between rows.

TGW: 13 g



MULTI-HARVEST EARLY SORGHUM X SUDAN

SUGAR GRAZE II


TYPE:

Bicolor x sudan x sweet sorghum hybrid

CYCLE:

average - early (62-68 days from emergence to flowering)

FEATURES:

- Very leafy, three-way hybrid with great tillering ability and very quick regrowth.
- Tall (2.6-2.8 m) and productive plant: in the official tests it proves to be the most productive of the multi-harvest sorghum varieties. In just a few years it has gained the trust of the best growers.
- Use: multi-harvest forage for producing chopped forage, banded hay, silage and pasture. In favourable conditions, up to three cuts can be obtained.
- Also suitable for producing biomass when an early cycle with high yield is required (late sowing, double harvest)
- Management: not to be used before it reaches 90-100 cm in height. The best quality is obtained during the boot stage (protein 9-10%). The maximum dry matter yield is obtained when the grain is ripe.

SOWING RATE: 35-45 kg/ha

TGW: 24 g

HAY DAY


TYPE:

Bicolor x sudan hybrid

CYCLE:

average - early (62-65 days from emergence to flowering)

FEATURES:

- Use: multi-harvest forage for producing chopped forage, banded hay, silage and pasture. Three cuts per season obtainable.
- Reliable and rustic hybrid with great tillering ability and very quick to regrow.
- Tall plant (2.5-2.6 m), very elastic, with guaranteed quality: excellent protein content.
- Management: not to be used before it reaches 90-100 cm in height. Maximum quality is obtained by harvesting during the boot stage. The maximum dry matter yield is obtained when the grain is ripe.

SOWING RATE: 40-50 kg/ha

TGW: 33 g

MATACO

TYPE: bicolor x sudan hybrid

CYCLE: average early (65 days from emergence to flowering)

FEATURES: Rapid growth, multi-cut hybrid

Very stable plant with stem rich in soluble sugars. Good Leafiness.

- Use: production of chopped forage, haylage. Up to three cuts can be obtained per season.

It's suitable to produce silage with late sowing.

- Management: not to be used before 90-100 cm in height.

SOWING RATE: 30-35 kg/ha (the highest dose is recommended for production of haylage). TGW: 21 g

SINGLE HARVEST LATE SORGHUM

PAMPA TRIUNFO XLT BMR (SBS 001)

TYPE: bicolor x sudanense hybrid

CYCLE: average (70-73 days from emergency to flowering)

FEATURES: The highest quality for a multi-harvest sorghum for producing chopped forage: the BMR character gives high fibre digestibility and high sugar content. The plant is 2.5 m high and with leaves, with great tillering ability. The shoots have a mean diameter. Good resistance to lodging.

- Use: production of chopped forage, banded hay, even with multiple cuts. It's suitable to produce silage with late sowing.
- Management: not to be used before 90-100 cm in height. The maximum quality is obtained during the boot stage (protein over 10%).

SOWING RATE: 10-15 kg/ha (the lowest dose is recommended for production of chopped forage). TGW: 31 g



SWEET DELIGHT

TYPE: sorghum x sudan hybrid

CYCLE: late (90 days from emergence to flowering)

FEATURES: - Use: multi-cut hybrids suited to produce silage, haylage.

- Leafy plant with good tiller production. Tall and stable hybrid with an excellent yield potential. Excellent resistance to water stress.

-Quick regrowth after each cut and wide harvest window without compromising quality.

- Management: the first cut should be done after 60-65 days after seedling emergence (or at least with plant height above 1 m).

SOWING RATE: 25 kg/ha for silage, up to 35 kg/ha for haylage or green forage production.

TGW: 29 g



BIG DRAGON BMR



TYPE: bicolor x sudanense hybrid.

CYCLE: very late, photoperiod sensitive hybrid, in the North it often does not come to full flowering.

FEATURES:

- Use: single harvest silage, biomass.
- Large wide leaves and the good tillering ability.
- Great quality of the fibre: BMR 6 hybrid always produces a forage very appetizing and digestible.
- In the trials it showed a better resistance to lodging than other BMR forage hybrids.
- Guaranteed productive potential: exploiting the whole growing season with early sowing, it can exceed 4 m in height.
- Suitable for producing large quantities of forage as a base for the feed ration.
- Management: optimal harvesting in September or at the beginning of heading.

SOWING RATE: 20-22 seeds/m² (with precision sowing), equal to about 6-7 kg/ha.

TGW: 27 g



SINGLE HARVEST SILAGE SORGHUM

PAMPA CENTURION BMR (SBF 001)


TYPE:

bicolor x bicolor hybrid.

CYCLE:

Average, (78 days from emergence to flowering)

FEATURES:

Use: single harvest chopped silage.

- Suitable for late sowing, it's the best solution in difficult areas instead of corn (dry areas or with pyralid borers or Diabrotica, etc.).
- The latest generation hybrid that combines the highest quality with excellent results:
- brachytic dwarf plant (short internodes and large leaves), good height (2-2.5 m).
- BMR6 fiber (low lignin content).
- Thick stalks and lodging resistant.
- Well-developed panicle that produces large amounts of grain.
- Management: optimal harvest when milky-dough stage (105 days after emergence).

SOWING RATE: 22-24 seeds/m² (with precision sowing), equal to about 7-8 kg/ha.
TGW: 36 g

LITTLE GIANT BMR


TYPE:

Bicolor x bicolor hybrid

CYCLE:

average - late (85 days from emergence to flowering)

FEATURES:

Use: silage production with direct cut harvest

- Suitable instead of corn in 2nd harvest or in difficult areas (dry areas or with pyralid borers or Diabrotica)
- Brachytic dwarf plant (short internodes and large leaves), plant height (1.8 - 2 m), does not lodge.
- BMR fibre (low lignin content)
- Well developed white panicle without tannin
- High energy content
- Management: optimal harvest when milky-dough stage.

SOWING RATE: 32-35 seeds/m² (with precision sowing), equal to about 10-13 kg/ha.
TGW: 30 g

SWEET CAROLINE


TYPE:

Bicolor x bicolor hybrid

CYCLE:

average-late (82 days from emergence to flowering)

FEATURES:

Use: silage production with direct cut harvest

- Suitable in difficult areas or to replace corn (dry areas or with pyralid borers or Diabrotica, etc.)
- Size: 1.8 - 2.5 m, with thick stalks and wide leaves for excellent row coverage.
- Well-developed panicle that produces good quantities of red grain
- Good green matter and grain ratio for digestible silage, with excellent protein content
- Management: optimal harvest when milky-dough stage, in which there is no tannin

SOWING RATE: 32-35 seeds/m² (with precision sowing), equal to about 10-13 kg/ha.
TGW: 30 g

SUMMER FORAGE

ASOLO TRIS

TYPE:

Balanced mixture of three forage sorghum hybrids

CYCLE:

Harvest about 110 days after emergence (milky-dough stage of the silage sorghum hybrid).

FEATURES:

- Use: single harvest silage both for forage and biogas
- Balanced mixture of three forage sorghum hybrids:
 - Silage sorghum: strong plant that has a support function. gives the chopped forage starch and protein.
 - Sweet sorghum: guarantees productivity and high sugar content.
 - BMR forage sorghum: contributes to lowering the lignin content and increasing fibre digestibility.
- Compared to sowing a single variety, this mixture guarantees:
 - high productivity
 - excellent compromise between yield and quality
 - simplified management (low risk of lodging)

SOWING RATE:

20-24 seeds/m² (with precision sowing), equal to about 7-8 kg/ha.
Recommended spacing between rows: 50 to 75 cm
TGW: 31 g



ASOLO BIS



TYPE:

Mixture of two BMR forage sorghum with very high digestibility, productivity and stability.

CYCLE:

late, about 115 days (from emergence to harvesting).

FEATURES:

- Use: silage, green forage.
- Suitable in fertile and deep soils, with good water capacity.
- Management: for single-cut silage production the optimal harvest is at milky-dough maturity of the silage hybrid; for green forage production don't cut before the plants reach 100 cm in height.

SOWING RATE:

18-20 seeds/m² (with precision sowing), equal to about 6 kg/ha. An early sowing is recommended to obtain the maximum yields.
TGW: 28 g.



SUMMERFOR

TYPE:

Intercropping of hybrid pearl millet and cowpea.

CYCLE:

Early. It can first be used just 50-60 days after sowing (forage height less than 100 cm).

FEATURES:

- Use: Pasture, green forage (in 2 or 3 cuts), banded hay. Important to harvest or graze before it reaches 1 m in height for the best quality.
 - High quality: in optimal conditions it is possible to have up to 17% protein in the green forage.
 - Total absence of cyanogen compounds.
 - Management: When sowing, the seeding machine must be carefully calibrated.
- It is recommended to sow on soil that is as free as possible from weeds.

SOWING RATE:

25-30 kg/ha, with soil temperature always greater than or equal to 16°C. Avoid sowing too early.



ITALIAN RYEGRASS

(*Lolium multiflorum*)



FEATURES

Italian ryegrass is one of the most common and important types of forage in advanced zootechnics.

It is a marked microthermal species with reduced temperature requirements for germination and vegetation, used for monophyte pastures and as a component in mixed pastures. Although it is very adaptable to different environmental conditions and soils, it gives the best of its potential in cool environments, with deep soils rich in nutritional elements. In these conditions it shows very rapid and vigorous growth, with a high ability to compete and control weeds. It does not withstand high temperatures or drought.

THERE ARE TWO SUB-SPECIES WITHIN THE SPECIES

***Lolium multiflorum* ssp. *Italicum*:**

usually has low alternativity (low ability to produce head in the sowing year), very resistant to winter frost, can form two- or three-year pastures.

***Lolium multiflorum* ssp. *westewoldicum*:**

annual plant, with high alternativity and fast establishment speed. Due to these features, in regions with mild winters it can be grazed with optimal yields all winter, during which it maintains constant vegetative activity.

SPECIES SELECTION ACTIVITY HAS ENABLED US TO GENERATE VARIETIES WITH DIFFERENT NUMBERS OF CHROMOSOMES:

Diploid varieties:

normal chromosome set. They have an early cycle, smaller seeds, thinner stalks and leaves and lower water content in the forage. They are particularly suitable for hay production.

Tetraploid varieties:

double the number of chromosomes as diploids. They have high production potential, larger seeds, are taller, have larger leaves and higher water content in the forage. They are very suitable for ensilage.

STRENGTHS OF THE SPECIES

- ✓ Simple agronomic management associated with high production potential and high nutritional value of the forage (high fibre digestibility, high sugar content, high metabolizable energy - see table -).
- ✓ Highly flexible to use during the production cycle: pasture, hay, silage, green forage.
- ✓ Excellent ability to exploit nitrogen-based fertilizers and reduction in the risk of nutrient leaching and polluting groundwater ("catch crop").

THE PADANA SEMENTI RANGE

- ✓ The range of varieties offered by Padana Sementi is the result of many years' research and experience in the field. The in-depth knowledge of the vegetative behaviour of every single variety allows targeted solutions to be offered for all requirements, geographical areas and for every zootechnical use.



JAKO

TYPE: Diploid, Italian

CYCLE: Early, heading 8 days before Excellent

FEATURES:

- Only autumn sowing period
- Use: Hay, with very high yields in the first spring cut. In favourable conditions it provides various cuts.
- Tall and erect plant with longer leaves than the test varieties
- Quick drying to produce high quality hay

SOWING RATE: 35-40 kg/ha

GIPSYL

TYPE: Diploid, Westervold (alternative)

CYCLE: Average-early, heading 5 days before Excellent

FEATURES:

- Autumn and spring sowing period
- Use: Hay, silage, potentially winter pasture
- Dutch genetics, very flexible to use due to its production potential and fast regrowth, particularly suitable for pastures in central-southern areas.

SOWING RATE: 35-40 kg/ha

MC LAREN

new

TYPE: Tetraploid, Westervold

CYCLE: Average, heading 5 days before Excellent

FEATURES:

- Autumn and spring sowing period
- Use: silage, haylage, winter pasture
- Very leafy and tall plant: excellent leaf-stem ratio.
- After winter grazing, it produces a very yielding cut, and is particularly recommended for Mediterranean or warmer areas with mild winter.
- Good fiber digestibility.

SOWING RATE: 45-50 kg/ha

ANDREA



TYPE: Diploid, Westervold (alternative)

CYCLE: Average-early, heading 4 days before Excellent

FEATURES:

- Autumn and spring sowing period
- Use: Mainly hay in various cuts, but also silage and pasture.
- This variety with Dutch genetics is now well known in the fertile areas of central-northern Italy as a production guarantee, thanks to its abundant leaves and tall height.
- Excellent ability to regrow.

SOWING RATE: 35-40 kg/ha

MAGNUM



TYPE: Tetraploid, Westervold (alternative)

CYCLE: Average - early, heading 4 days before Excellent

FEATURES:

- Autumn and spring sowing period
- Use: silage, hay (in drier areas), winter pasture
- Very leafy plant with a good size
- Multi-purpose variety particularly suitable in central-southern Italy where the autumn-winter pasture offers an abundant cut. It has excellent quality parameters such as the sugar content and palatability.

SOWING RATE: 45-50 kg/ha

LINOS

TYPE: Tetraploid, Westervold (alternative)

CYCLE: Average, heading 2 days before Excellent

FEATURES:

- Autumn and spring sowing period.
- Use: silage, winter pasture, hay only in the drier areas.
- Plant that establishes quickly, with an excellent leaf-stem ratio.
- Excellent regrowing ability, allows various spring cuts to be provided in good conditions.

SOWING RATE: 45-50 kg/ha

BIG BANG

TYPE: Tetraploid, Westervold (alternative)

CYCLE: Average, heading 1 days before Excellent

FEATURES:

- Autumn and spring sowing period
- Use: silage, winter pasture.
- Very recent genetics, selected in Holland.
- Tall, great production potential, very healthy plant.

SOWING RATE: 45-50 kg/ha

EXCELLENT

TYPE: Tetraploid, Italian (not alternative)

CYCLE: Average

FEATURES:

- Only autumn sowing period.
- Use: silage, but also hay in favourable conditions.
- Erect plant not susceptible to lodging, tall.
- Thin stem and leafy, compared to other tetraploids it allows fast drying for good quality hay.
- Variety developed in our breeding program, which guarantees good adaptability and very high yields in the various areas.

SOWING RATE: 45-50 kg/ha

AUBADE



TYPE: Tetraploid, Westervold (alternative)

CYCLE: Average - late, heading 2 days after Excellent

FEATURES:

- Autumn and spring sowing period.
- Use: silage and winter pasture.
- The plant stands out due to its very wide leaves and good resistance to lodging.
- From a quality point of view the high digestibility of the fibre is underlined and the protein content that leads to a high MFU content.

SOWING RATE: 45-50 kg/ha

EXTREM



TYPE: Tetraploid, Westervold (alternative)

CYCLE: Average - late, heading 3 days after Excellent

FEATURES:

- Autumn and spring sowing period.
- Use: silage, winter pasture. With early sowing, a good autumn cut can be obtained.
- Vigorous plant and productive with quick establishment.
- It has obtained excellent results in central-southern areas of Italy susceptible to spring drought and adapts very well to the cooler northern areas.
- PSE genetics: it highlights good digestibility and a low lignin content compared to average.

SOWING RATE: 45-50 kg/ha

DUKAT



TYPE: Tetraploid, Italian (not alternative).

CYCLE: Average - late, heading 4 days after Excellent.

FEATURES:

- Only autumn sowing period.
- Use: silage or banded hay. Hay only in optimal conditions.
- Tall, semi-erect plant.
- It has highlighted high production potential and a great tillering ability. For this reason it maintains high yields even in multiple cuts management.
- Variety of Polish genetics recently constituted.

SOWING RATE: 45-50 kg/ha

BORMITRA

TYPE: Tetraploid, Westervold (alternative)

CYCLE: Average - late, heading 4 days after Excellent

FEATURES:

- Autumn and spring sowing period.
- Use: silage, winter pasture, green forage.
- Plant with balanced leaf-stem ratio, good tolerance to rust.
- Recently developed variety, suitable for management in various cuts. Great palatability observed in pasture and green forage due to the high sugar content.

SOWING RATE: 45-50 kg/ha

DANERGO

TYPE: Tetraploid, Italian ryegrass.

CYCLE: Average-late, heading 4 days after Excellent.

FEATURES:

- Autumn sowing
- Use: silage, haylage.
- Erect plant that facilitates mowing.
- Guaranteed productivity: it was one of the varieties at the top of the official tests in Italy.
- High resistance to leaf rusts and to Fusarium and good tolerance to mildew, guarantee a highly palatable healthy fodder.

SOWING RATE: 45-50 kg/ha

BARTIGRA

TYPE: Tetraploid, Westervold (alternative)

CYCLE: Late, heading 5 days after Excellent

FEATURES:

- Autumn and spring sowing period.
- Use: silage, winter pasture, green forage.
- Fast establishment, adaptable both in the north and the centre-south.
- Resistant to lodging, great tillering ability, and soil coverage in spring.
- Suitable for harvesting in various cuts considering its regrowing ability.

SOWING RATE: 45-50 kg/ha

BARSUTRA

TYPE: Tetraploid, Westervold (alternative)

CYCLE: Late, heading 5 days after Excellent

FEATURES:

- Autumn and spring sowing period.
- Use: silage, winter pasture.
- Dutch variety, with very high production performance levels. High protein content of the forage and high yield in MFU.
- Suitable for all Italian growing areas.

SOWING RATE: 45-50 kg/ha

BARTIMUM

TYPE: Tetraploid, Westervold (alternative)

CYCLE: Late, heading 6 days after Excellent

FEATURES:

- Autumn and spring sowing period. - Use: silage, winter pasture, green forage.
- Very healthy plant with erect habit and good resistance to lodging.
- Very high production potential.
- Fast spring growth, even after intense grazing.

SOWING RATE: 45-50 kg/ha



WHEAT FORAGE

(*Triticum aestivum*)



FEATURES

- Over recent years soft wheat has become increasingly common as a forage plant both for producing silage and for producing hay, thanks to the excellent quality features of the green plant.
- To use wheat successfully as forage, the variety must be chosen carefully, especially so as to maximise yields.
- The desired features are above average height, excellent tillering ability, very leafy, very healthy plant, short awned spikes.
- Wheat forage is harvested from the start of heading (hay) to the milky-dough stage (chopped forage).

STRENGTHS OF THE SPECIES

- ✓ High green matter production levels in more favourable conditions.
- ✓ High protein content, good fibre digestibility and high MFU content.
- ✓ Lignin content lower than rye and triticale.



	MINIMUM	AVERAGE	MAXIMUM
Dry matter (%)	20.1	20.7	21.4
Protein (% dry matter)	11.6	13.0	14.4
Lipids (% dry matter)	2.2	2.3	2.5
NDF (% dry matter)	57.0	61.0	64.3
ADF (% dry matter)	34.5	37.3	39.7
ADL (% dry matter)	2.9	3.4	4.0
Sugar (% dry matter)	4.7	8.5	10.9
digNDF (% NDF)	57.7	62.8	68.3
MFU	0.64	0.69	0.75

Average analyses on green plants in the heading stage (source: P.S.E. tests)



ENRICO



CYCLE:

Late (see table on page 35).

FEATURES:

- Autumn sowing period.
- Use: forage and grain.
- Brand new variety of Austrian genetics . Tall plant with awnless spike, and biomass yields potential.
- Plant resistant in particular to leaf rusts and Septoria, guarantees the production of healthy and quality fodder.
- High baking quality grain.

SOWING RATE: 160-170 kg/ha.

ALBERTUS

CYCLE:

Late, not alternative (see tab. on page 35).

FEATURES:

- Autumn sowing time.
- Use: high quality grain, however, given the height, it's also good for silage.
- High protein content (> 15%) and high specific weight.
- Medium-high plant with aristate spike. Good tillering ability.
- Good resistance of the spikes to fusariosis.

SOWING RATE: 160-180 kg/ha.

AUGUSTUS



CYCLE:

Late, not alternative (see tab. on page 35).

FEATURES:

- Autumn sowing period.
- Use: forage (silage and hay).
- Tall variety (110-120 cm), short awned spike, erect leaves and great resistance to lodging.
- Very healthy leaves: good resistance to Fusarium and tolerant to rust.
- The plant remains leafy until harvest and guarantees excellent fibre digestibility.

SOWING RATE:

160-180 kg/ha.

KWS FERRUM

in partnership with



CYCLE:

Medium, not alternative (see page 35).

FEATURES:

- Autumn sowing period.
- Use: silage for zootechnical and bioenergetic use.
- Medium-high plant, short awned spike and high tillering ability.
- Healthy plant and spike health.
- Excellent resistance to lodging.
- Stable and high yields in the most suitable soils, with good green colour retention.

SOWING RATE: 170-180 kg/ha.

LISKAMM

new

CYCLE:

Medium- late, alternative (see page 35)

FEATURES:

- Autumn and spring sowing.
- Use: silage or grain.
- Leafy and tall plant with big awnless ear.
- Good tiller production and good stability in relation to the height reached.
- Excellent staygreen
- The variety stands out for its health and tolerance against leaf rust. For this reason it is recommended for organic farming.
- Produces high quality grain

SOWING RATE:

160-170 kg/ha. In case of spring sowing 180-190 kg/ha.

KWS SCIROCCO

in partnership with



CYCLE:

Average-early, alternative (see page 35).

FEATURES:

- Autumn and spring sowing period.
- Use: forage and grain. - Plant of good size, short awned spike and good tillering ability.
- Good tolerance to Oidium, Fusariosis and brown rust.
- Excellent resistance to lodging.
- High production potential in both forage and grain.
- It produces good quality grain.
- Its precocity makes it suitable also for many areas of the Center-South.

SOWING RATE: 170-180 kg/ha.

CH CAMPALA

CYCLE:

Early (heading 10 days before Augustus), (see tab. on page 35), alternative.

FEATURES:

- Autumn and spring sowing period.
- Use: forage and grain.
- Short awned spike variety, medium-high plant with excellent lodging resistance.
- Very healthy leaves: good yellow rust resistance and its tolerance to Oidium.
- Good quality grain and high specific weight.

SOWING RATE: 180 kg/ha.



ORZO

(*Hordeum vulgare*)



FEATURES

- A cereal traditionally used for forage crops, it is especially suited to pasture, green forage or silage.
- The harvesting stage is extremely important as it must be harvested before the heading stage so that the quality is not lost.



MINIMUM AVERAGE MAXIMUM

	MINIMUM	AVERAGE	MAXIMUM
Dry matter (%)	22.8	24.3	25.8
Protein (% dry matter)	12.1	12.4	12.8
Lipids (% dry matter)	1.5	1.6	1.6
NDF (% dry matter)	56.2	57.3	58.5
ADF (% dry matter)	32.7	33.7	34.8
ADL (% dry matter)	3.4	3.4	3.5
Sugar (% dry matter)	8.7	9.2	9.6
digNDF (% NDF)	63.7	65.0	66.3
MFU	0.75	0.74	0.76

Average analyses on green plants in the heading stage (source: P.S.E. tests)

STRENGTHS OF THE SPECIES

- ✓ Barley produces high quality forage, with a high energy content (see table).
- ✓ Compared to wheat and oats, it is earlier
- ✓ Excellent adaptability to lean or loose soils and to those that tend to be salty.



KWS TONIC

in partnership with

KWS



CYCLE: Average (see page 35).

FEATURES:

- Autumn sowing period.
- Use: forage and grain.
- Six rows barley, average-tall size, vigorous growth.
- Great productivity: in the official tests it competes with the best hybrid rice.
- Excellent resistance to lodging.
- High specific weight and good caliber grain, suitable for zootechnical use.

SOWING RATE: 140-150 kg/ha.



HEIDI



CYCLE: Average-early, not alternative.

FEATURES:

- Use: forage (silage and pasture), grain.
- Six rows barley that is much taller than average, high resistance to lodging.
- Excellent quality grain and specific weight
- Good resistance to leaf rust.
- Excellent harvest for forage from pre-heading up to the milky stage.

SOWING RATE: 150-160 kg/ha.

RENI

CYCLE: Average-late, not alternative.

FEATURES:

- Use: forage (silage and pasture), grain.
- Two rows barley, tall, does not lodge easily.
- Excellent quality grain, particularly the size and weight of 1000 seeds
- Excellent harvest for forage from pre-heading up to the milky stage.

SOWING RATE: 150-160 kg/ha.

MOCHINA

CYCLE: Average-early, (see page 35).

FEATURES:

- Autumn sowing.
- Use: forage.
- Six row variety with awnless ear that represents something new on the forage plant market.
- Perfect variety for forage use: tall, leafy plant with high tiller production and excellent staygreen. The absence of awns allows to have a more palatable fodder even after earing.
- Good resistance to lodging and excellent plant health.

SOWING RATE: 140-150 kg/ha.

TRITICALE

(x *Triticosecale*)



FEATURES

- Cereal that originates from a cross between wheat and rye, initially selected as a grain cereal.
- This cereal is becoming increasingly important for the production of green matter and for zootechnics and bioenergy.
- Padana Sementi Elette has been promoting this species for a long time and it is among the first Italian companies to focus on its potential for pure forage and in forage crop intercropping.
- The company is also making investments for the selection in Italy of new varieties, to extend its already wide range of varieties.

FROOME



CYCLE:

Very early (-25 days compared to Leontino).

FEATURES:

- Autumn and spring sowing period.
- Use: silage.
- Brand new variety, with tall plant and well developed ear.
- It adapts to all Italian conditions, but it is particularly indicated in areas with a Mediterranean climate where it can exploit at best the mild winters and short springs, avoiding the effects of anticipated droughts.
- Resistant to lodging.

SOWING RATE:

180-200 kg/ha.

STRENGTHS OF THE SPECIES

- ✓ More hardy, adaptable and productive species than wheat and higher quality compared to rye (see table).
- ✓ Crop that is suited to being managed sustainably, with low agronomic input (fertilizers, plant protection products)
- ✓ Very healthy plant, which is naturally less susceptible to fungal diseases compared to the other cereals. In unfavourable years (damp, mild winters), any fungal attacks can be easily contained with a targeted treatment if extensive symptoms present.



	MINIMUM	AVERAGE	MAXIMUM
Dry matter (%)	18.3	21.1	24.3
Protein (% dry matter)	9.9	10.9	11.5
Lipids (% dry matter)	1.6	2.1	2.6
NDF (% dry matter)	65.5	67.7	71.1
ADF (% dry matter)	38.5	40.6	43.2
ADL (% dry matter)	3.2	4.1	4.8
Sugar (% dry matter)	2.3	5.1	8.9
digNDF (% NDF)	53.9	59.6	66.7
MFU	0.59	0.64	0.69

Average analyses on green plants in the heading stage (source: P.S.E. tests)

LEONE



CYCLE:

Very early (-23 days compared to Leontino).

FEATURES:

- Autumn and spring sowing.
- Use: silage.
- Italian genetics, selected by CREA (national institute for agricultural research) in collaboration with Padana Sementi for precocity and complete alternativity.
- Good plant size, suitable for cultivation in all Mediterranean areas and where the earliest harvest is needed.
- Plant adaptable and lodging resistant.

SOWING RATE:

180-200 kg/ha.

DUBLET



CYCLE:

Average-early, alternative (-14 days compared to Leontino).

FEATURES:

- Autumn and spring sowing period.
- Use: silage, biomass, hay.
- High plant, high leafiness.
- It is distinguished by its excellent health and resistance to Septoria and brown rust, even in tough years.

SOWING RATE:

160-180 kg/ha.



Data taken from Beta 2014 tests. Average of the data from 2 locations, first 8 varieties of the 21 being tested.

VARIETY	AS IS t/ha	Dry matter %	Dry matter t/ha
MAXIMAL	54.42	31.99	17.06
EXAGON	52	29.87	14.99
COSINUS	51.22	31.46	15.6
CICLONE	50.96	31.16	15.58
QUIRINALE	50.39	31.09	15.32
TARZAN	49.93	31.87	15.57
KWS FIDO	49.81	33.42	16.27
AGOSTINO	49.42	31.59	14.86
Test Average	48.63	30.97	14.6

Data taken from the official Austrian tests 2014.
(average of 8 locations)

VARIETY	GRAIN PRODUCTION INDEX	PLANT HEIGHT (CM)	SPECIFIC WEIGHT
CLAUDIUS	108	131	72.6
TRIAMANT	104	124	72.7
COSINUS	100	129	73.9
TULUS	100	128	71.7
MUNGIS	99	126	73.6
BOROWIK	99	138	70.1
AGOSTINO	98	105	75.1
TRICANTO	97	136	74.1
TRIMMER	94	139	72.7
ELPASO	94	124	74.2

GORILLA



CYCLE:

Medium early (-8 days compared to Leontino).

FEATURES:

- Autumn and spring sowing season.
- Use: recommended both for silage and grain production.
- New variety developed by CREA (national institute for agricultural research) in collaboration with Padana Sementi.
- Plant with good size and excellent tiller production, very reliable and adaptable to different areas.
- It is distinguished by its high health and resistance to leaf diseases and in particular to rusts.
- Lodging resistant.

SOWING RATE:

170-180 kg/ha.

KWS FIDO



KWS



in partnership with

CYCLE:

Average-early, semi-alternative (-6 days compared to Leontino).

FEATURES:

- Autumn sowing period.
- Use: silage for zootechnical and bioenergetic use.
- Tall plant with good early vigour and fast spring growth.
- Quite good overall health, with good leaf diseases tolerance.
- Good biomass yield potential.

SOWING RATE:

170 kg/ha.

TRIAMANT

CYCLE:

Average-late, not alternative. (-5 days compared to Leontino)

FEATURES:

- Tall, very healthy plant
- Recommended in the formulation of forage mixtures due to being very leafy.

SOWING RATE:

170-180 kg/ha.

TRASTEVERE

CYCLE:

Medium (-5 days compared to Leontino)

FEATURES:

- Autumn sowing season.
- Use: silage and grain.
- Brand new variety selected in Italy.
- Medium-high size plant, with great stability. Reliable in every Italian area.
- High resistance to leaf rust.

SOWING RATE:

170-180 kg/ha.



CLAUDIUS



CYCLE:

Average, not alternative. (-5 days compared to Leontino)

FEATURES:

- Autumn sowing period.
- Use: silage, biomass, grain.
- Tall plant, not very susceptible to diseases.
- Completely new in 2015: all the potential of this variety has emerged from the official Austrian tests (see table)

SOWING RATE:

160-180 kg/ha.

COSINUS

KWS



in partnership with

CYCLE:

Average, not alternative (-4 days compared to Leontino).

FEATURES:

- Autumn sowing period.
- Use: silage for zootechnical and bioenergetic use.
- Impressive size plant with great lodging resistance.
- High and stable production in all areas, with good green colour retention.
- Good health of the plant.

SOWING RATE:

150-160 kg/ha.

LEONTINO



CYCLE:

Late, not alternative (see tab. on page 35).

FEATURES:

- Autumn sowing period.
- Use: silage, biomass, grain.
- Medium-tall plant, leafy, rare lodging, with great tillering ability.
- Moderately resistant to the most common diseases.
- Very high production potential.

SOWING RATE:

170-180 kg/ha.

AVOKADO



CYCLE:

Late, not alternative (see table on page 35).

FEATURES:

- Autumn sowing period.
- Use: silage, biomass, grain.
- Very leafy plant with a marked tillering. Medium-tall plant.
- High resistance to leaf rust and spike Fusarium. Resistant to lodging.
- High yield potential in fertile areas of Northern Italy.

SOWING RATE:

170kg/ha.



OATS

(*Avena sativa*)



FEATURES

- Among the cereals it is probably the one that lends itself best to forage production and the one that is most often used for this purpose.
- The different types of oats are traditionally distinguished by the colour of the grain: white oats, mainly used for producing grain, black oats that are more leafy and suitable for forage, red oats particularly suitable for the hot and dry climates of central-southern Italy.
- The careful choice has led to the resolution of some limiting factors of this plant; resistance to lodging, and resistance to winter cold also in northern Italy.
- Confirming the attention that goes into the selection of our range of varieties, some have been at the top of the official tests for a number of years now.

STRENGTHS OF THE SPECIES

- ✓ Multi-functional forage cereal: pasture, hay, green forage, grain
- ✓ Suited to all Italian environments, it expresses its potential best in the central-southern areas with a mild winter.
- ✓ Compared to other cereals, oats allow a distinctly wider harvesting window, with a very slow deterioration of the forage quality as it ripens further.
- ✓ The quality of the forage produced is very high: low lignin content, high fibre digestibility (similar to ryegrass), and MFU yield higher than any other cereal (see table).



	MINIMUM	AVERAGE	MAXIMUM
Dry matter (%)	16.0	18.3	20.2
Protein (% dry matter)	10.1	11.6	12.8
Lipids (% dry matter)	1.8	2.2	2.5
NDF (% dry matter)	48.6	55.7	66.2
ADF (% dry matter)	32.4	36.5	41.9
ADL (% dry matter)	2.1	2.7	3.8
Sugar (% dry matter)	4.3	8.8	13.1
digNDF (% NDF)	61.9	71.4	77.2
MFU	0.68	0.77	0.82

Average analyses on green plants in the heading stage (source: P.S.E. tests)

FORRIDENA

CYCLE: Late, alternative. (same cycle as Aveny)

FEATURES:

- Autumn and spring sowing period.
- Use: forage (silage, bonded hay), pure or in intercropping.
- White grain variety.
- The plant can be clearly distinguished by its imposing size (up to 170 cm) and abundant leaves. Therefore intercropping guarantees the lowest risk of lodging and the best performance levels in the field.
- Allows very high quantities of top quality green matter to be produced (above average digestibility for oats).

SOWING RATE: 110-130 kg/ha.

AVENY

CYCLE: Late, alternative.

FEATURES:

- Autumn and spring sowing period.
- Use: dual use for grain and forage (in intercropping and pure).
- White grain variety, tall.
- Very resistant to lodging compared to all other oat varieties.
- Resistant to winter frost
- Stands out due to its very high production potential as shown and every year confirmed by the results of the tests coordinated by CRA.
- Very high performance levels in central-northern Italy
- Very healthy plant even in difficult years.

SOWING RATE: 130-150 kg/ha.



GNIADY

CYCLE:

Late, alternative. (-2 compared to Aveny)

FEATURES:

- Autumn and spring sowing period.
- Use: dual use for grain and forage (in intercropping and pure).
- Black grain variety, medium-tall and with wide and healthy leaves.
- High resistance to lodging.
- Resistant to winter frost.
- Still in the official tests, it is currently the most productive black oat variety in Italy, particularly in the central-northern areas.

SOWING RATE:

130-150 kg/ha.

BERDYSZ

CYCLE:

Average-late, alternative. (-4 compared to Aveny)

FEATURES:

- Autumn and spring sowing period.
- Use: grain and forage (silage, bonded hay).
- Yellow grain variety.
- Average size plant, not susceptible to lodging, optimal leaf/stem ratio.
- Resistant to Oidium and Septoria.

SOWING RATE:

140-150 kg/ha.

LUNA

new

CYCLE:

Medium, alternative (-5 days compared to Aveny)

FEATURES:

- Autumn and spring sowing period.
- Use: high quality grains and forage.
- Naked oats: the seed at harvest has no external husk. Indicated for gluten-free food industry.
- The high size, good leafiness and medium stem size make it an excellent forage variety for hay or mixtures.

SOWING RATE:

130-140 kg/ha.

PROKOP

new

CYCLE:

Average-early, alternative (-6 compared to Aveny).

FEATURES:

- Autumn and spring sowing period.
- Usage: forage (silage, banded hay) and grain.
- New white-grain variety, with medium-high size and good resistance to lodging.
- Good tolerance to rust and Oidium.
- It produces grain of good specific weight.

SOWING RATE:

130-150 kg/ha.



TYPHON

CYCLE: Average-early, alternative. (-8 compared to Aveny)

FEATURES:

- Autumn and spring sowing period.
- Use: forage (silage, bonded hay), intercropping in forage crops and grain.
- White grain variety, with tall plant, particularly wide leaves, does not lodge easily.
- Resistant to Oidium, good tolerance to leaf diseases.
- First for production in official tests in Austria.

SOWING RATE: 130-150 kg/ha.

PREVISION

CYCLE: Early, alternative. (-10 compared to Aveny)

FEATURES:

- Red grain variety, with thin plant suitable for hay, medium-tall.
- Perfect variety for central-southern Italy, where it is shown to be very hardy and reliable.

SOWING RATE: 130-150 kg/ha.

BRISTLE OAT

(Avena strigosa)

STRENGTHS OF THE SPECIES

- ✓ Very hardy, adaptable and productive species, more resistant to fungal diseases compared to other oat varieties.
- ✓ Plant with much thinner shoots and leaves than other oat varieties.
- ✓ Particularly suitable for pasture (excellent regrowing and tillering ability) and for haymaking.
- ✓ Excellent resistance to environmental stress.
- ✓ Excellent green manure species with nematocidal activity against *Pratylenchus*, and ability to reduce nutrient losses (catch crop).

SAIA 6

CYCLE:

Early, alternative.

FEATURES:

- Use: Hay and pasture. However, it is recommended to use it in intercropping to reduce the risk of lodging and improve yields.
- Tall plant, very healthy and not susceptible to particular diseases.
- Excellent adaptability throughout Italy, it also adapts well to less fertile soils and the difficult central-southern areas with the risk of spring drought.

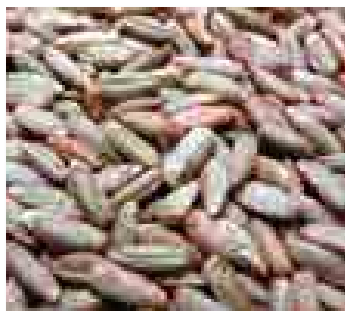
SOWING RATE:

70-80 kg/ha.

OTHER VARIETIES AVAILABLE: **JAPAR 61**

RYE

(*Secale cereale*)



STRENGTHS OF THE SPECIES

- ✓ Cereal with an early cycle, adaptable and not demanding in terms of agronomic input.
- ✓ Suitable for marginal soils, also in cold or mountainous areas.
- ✓ Allows good grain or forage yields, with low production costs.

BORFURO

CYCLE:

Average, not alternative.

FEATURES:

- Autumn sowing period.
- Use: grain or biomass (also in intercropping).
- Tall variety with good quality grain for bread flours.

SOWING RATE:

160-170 kg/ha.

DUKATO

CYCLE:

Average, not alternative.

FEATURES:

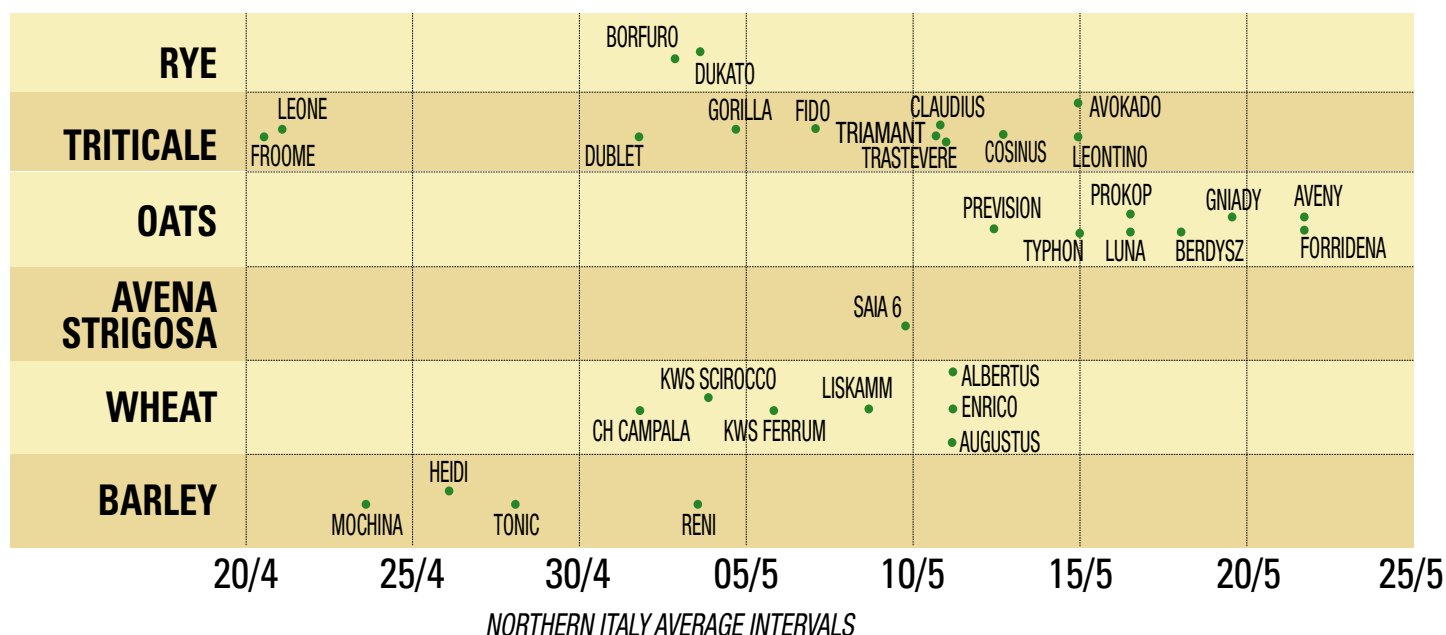
- Autumn sowing period.
- Use: forage (silage) and grain.
- Medium-sized plant with discrete lodging resistance.
- Affordable in all environments.
- Good tolerance to major cereal diseases.
- Produces grain to make into bread.

SOWING RATE:

150-160 kg/ha.



Heading period of the different varieties



CRIMSON CLOVER

(*Trifolium incarnatum*)



FEATURES

- Annual clover that can be used both in areas with mild climates and in more northern areas, considering its good resistance to cold (up to -20°C).
- Can be used both pure and in mixtures for pasture meadows, hay and green manure.
- In spring it provides a single cut and if sowed early in autumn it provides an excellent pasture for the whole winter.
- The green forage does not cause meteorism.
- Suitable for loose to clay soils, with pH between 5.5 and 7.5.

ALBEROBELLO

CYCLE:

Early cycle.

FEATURES:

- Excellent for abundant hay harvest, can be grazed in winter.
- Great production potential, both for formation of forage mixtures and for early production of green manure for nitrogen soil enrichment.

SOWING RATE:

30-35 kg/ha.

PIER

CYCLE:

Early cycle.

FEATURES:

- Very leafy and resistant leaves after cutting.
- Use: hay, forage, pasture.

SOWING RATE:

30-35 kg/ha.

OPOLSKA

CYCLE:

Average-late cycle.

FEATURES:

- Use: silage and pasture.

SOWING RATE:

30-35 kg/ha.

HYKNUSA

CYCLE:

Very late cycle.

FEATURES:

- Obtained by Padana Sementi Elette starting from Sardinian ecotypes.
- Great regrowing ability, extended period of use which allows yields to be maximised.
- Use: particularly suitable for good quality pasture, followed by the spring cut.

SOWING RATE:

30-35 kg/ha.



BERSEEM CLOVER

(*Trifolium alexandrinum*)



FEATURES

- Annual clover generally used pure, but that can be used for intercropping in forage crops.
- Remarkable resistance to spring drought, it adapts well to Mediterranean conditions.
- Poor resistance to winter frost: in northern Italy it can be sowed in spring where it can provide two or more cuts.
- In mild climates it can be cut various times from autumn until spring.
- Suitable for grazing, green forage and hay.
- It adapts to various types of soil, but prefers clay and alkaline soils. optimal pH between 6 and 8.

Sowing rate: 20-30 kg/ha.

LAURA

CYCLE: average-late.

FEATURES:

- Variety with good tillering and regrowing ability.
- Average tolerance to the cold, it is more productive in central-southern areas.

MARIO

CYCLE: average-late.

FEATURES:

- Two-colour seed variety, with decent tolerance to the cold.
- Good resistance of the leaf after cutting and high leaf/stem ratio.
- Use: hay, forage, pasture.

LEILA

CYCLE: Average.

FEATURES:

- Selected variety in Central Italy, with good resistance to water stress.
- Medium-sized plant with vigorous growth.
- Use: hay, pasture.

Sowing rate: 20-30 kg/ha.



PERSIAN CLOVER

(*Trifolium resupinatum*)



FEATURES

- Annual clover suitable for producing hay or for grazing, pure, or in a mixture with graminaceous crops.
- It prefers clay or medium textured soils with pH between 5.5 and 8. Not suitable for sandy and very acidic soils.
- Produces very palatable and high quality forage: the stalk is thick, but hollow inside and very soft.
- It is sowed in the autumn in the central-southern areas and in the spring in the north.

Sowing rate: 8-10 kg/ha.

LIGHTNING

CYCLE: average-late.

FEATURES:

- Variety suitable for strong and alkaline soils.
- Semi-erect plant, suitable for cutting and intercropping with graminaceous plants.

LOGUDORO

CYCLE: average.

FEATURES:

- Erect plant, with vigorous and hollow stalks.
- Produces excellent, palatable and digestible forage (16-24% crude protein)
- Use: pasture, hay and silage.
- Quick establishment that makes it suitable for spring sowing with excellent production levels.

LASER

CYCLE: late.

FEATURES:

- Very flexible use: good winter growing and extended season of use for pasture, rapid regrowth for green forage or hay.
- Stalk has good tolerance to rust and Phythophthora.



COMMON VETCH

(*Vicia sativa*)



FEATURES

- Annual climbing species, mainly used in intercropping for the formation of autumn-spring forage crops along with other leguminous or graminaceous plants, to increase the protein content.
- Very hardy and adaptable plant: grows in light and clay soils, not very susceptible to waterlogging with pH comprised between 5.5 and 8.0.
- Excellent green manure species due to its great nitrogen fixing ability and its great ability to cover and suppress weeds.

Sowing rate: 90-120 kg/ha

BUZA

CYCLE: Average-late.

FEATURES: Vigorous growth, high productivity.

ALEXANDROS

CYCLE: Average-early cycle.

FEATURES: Very adaptable.

MARIANNA

CYCLE: Average-early cycle.

FEATURES: Very vigorous and productive.

HAIRY VETCH

(*Vicia villosa*)



FEATURES

- Climbing species which, compared to the common vetch, is very hardy and resistant to cold, even in mountainous areas.
- It can regrow if it is cut before flowering, whereas if it is harvested later it quickly loses its quality as the fibres get harder.
- It withstands saline soils and drought, adapting to acidic and sandy soils as well as heavy soils susceptible to waterlogging.
- Excellent for green manure, thanks to its aggressive spring growth, It is recommended always to bury it before the seeds ripen.

Sowing rate: 75-100 kg/ha

VILLANA

CYCLE: Average cycle.

FEATURES: -Tolerates autumn grazing, and is very quick to regrow. Great production potential, with vigorous spring growth.

HAYMAKER PLUS

CYCLE: Average cycle.

FEATURES: It tolerates grazing also during autumn and shows fast tillering ability. Great production potential, with vigorous spring growth.

PURPLE VETCH

(*Vicia benghalensis*)



FEATURES

- Species with a late cycle, suitable for central-southern Italian environments.
- Does not withstand winter frost
- Excellent quality forage both for hay and for silage.

Sowing rate: 50-70 kg/ha

POPANY

CYCLE: Late cycle.

FEATURES: Semi-erect plant. Hardy and tolerant to drought, suitable for pasture.

AUTUMN SOWING CROPS

HUNGARIAN VETCH

(*Vicia pannonica*)



FEATURES

- Species with good resistance to cold, suitable for damp/humid environments with heavy and clay soils.
- Compared to the hairy vetch it is less aggressive in intercropping, allowing balanced mixtures to be formulated.

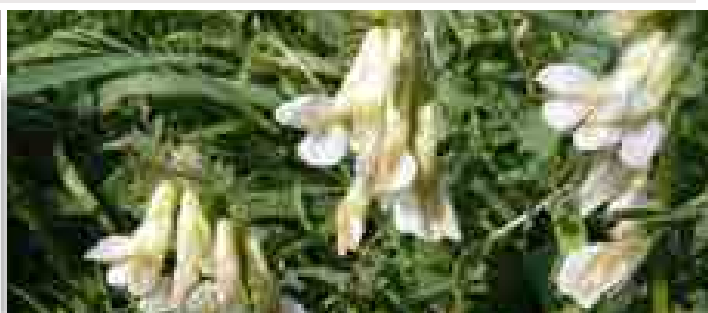
DETENICKA

CYCLE:

Average cycle.

FEATURES:

Particularly suitable for the formation of forage for central-northern areas, where it does not create excessive competition with other species, compromising their stability.



FABA BEAN

(*Vicia faba minor*)



FEATURES

- This species is suitable for sandy to clay soils with sub-alkaline reaction, and it does not withstand drought or prolonged waterlogging.
 - Used pure to produce grain or, less frequently intercropped, for forage crops.
- The excellent quality grain (25-30% protein) is used in the formulation of feed.
- Excellent for improving soil due to its high nitrogen fixing ability, therefore it is suitable for green manure.

PROTHABON 101

CYCLE: Average-early.

FEATURES:

- Autumn sowing period (centre-south) or early spring in the north.
- Use: grain, green manure.
- Average-tall plant (110-120 cm), with a light grain, insertion of the first pod high off the ground (15 cm), to facilitate harvesting and prevent losses.
- Not very susceptible to lodging.
- High protein content of the grain (up to 31-33%), suitable for producing flour with high protein content.
- Constantly high production levels.

SOWING RATE:

With precision sowing: 50-60 seeds/m², corresponding to 200-240 kg/ha

- Average TGW: 480 g.



SOLON

CYCLE: Average - early.

FEATURES:

- Autumn sowing period (Center-South) or early spring in the North of Italy.
- Use: grain, green manure.
- Medium size plant (100-120 cm), not very susceptible to lodging.
- Light colour grain variety.
- Good resistance to Sclerotinia and low temperatures.
- High protein content of grain (up to 31-32%), suitable for the production of protein flours and livestock feeding.

SOWING RATE:

Con semina di precisione: 40 seeds/m², corrispondenti a 200-240 kg/ha

- Peso medio 1000 semi: 580 g.



PEA

(*Pisum sativum ssp. hortense*)



FEATURES

- Sub-species mainly used for producing grain for human food or zootechnics. It is often added to forage mixtures to increase the protein content of the forage.
- Quite resistant to winter cold (maximum resistance stage at 4-5 leaves).
- Does not tolerate spring heat and drought, or waterlogging.
- Average recommended seed investment: 120 seeds/m².

PROTEAL

CYCLE: Average-early cycle.

FEATURES:

- Afila plant with yellow grain, erect and tall (80-90 cm).
- Suitable for both grain and forage. Excellent for intercropping in forage crops.
- High protein content of the grain.

SOWING RATE: 250-260 kg/ha

ANGELA

CYCLE: Early.

FEATURES:

- Use: grain and forage.
- Afila variety with yellow grain, erect habitus and medium size, that makes threshing easier.
- Great productive potential and quality grain, that allows high protein yields per hectare.

SOWING RATE: 240-250 kg/ha

HARDY

CYCLE: Early cycle.

FEATURES:

Afila variety, with light cream grain. Excellent grain production potential.

SOWING RATE: 250-280 kg/ha

FORAGE PEA

(*Pisum sativum ssp.*)



FEATURES

- Climbing plant with real leaves and greater vegetative development than the pea.
- It is exclusively used in intercropping with graminaceous and leguminous crops for producing green forage or silage.
- In areas with mild climates it can be used instead of vetch, providing forage with more sugar and less fibre.

OLYMPUS

CYCLE: Average.

FEATURES:

- Climbing plant, with a shifting flower maturation, it's especially suited to the combination of grassings with graminaceae.
- Late spring or late autumn in the North (November).

SOWING RATE: 200-210 kg/ha.

ARVIKA

CYCLE: Average-late cycle.

SOWING RATE: 200-220 kg/ha.

PINK SERRADELLA

(*Ornithopus sativus*)



FEATURES

- Annual leguminous crop for pasture, with spindly, prostrate, upward and very branched stems and composite leaves. Flowers in pale pink heads.
- Suitable for adding to autumn-spring pasture forage crops or pure.
- Provides very palatable, high quality forage (protein 19%, digestibility of dry matter 70-80%), does not cause any problems for livestock.
- Suitable for acidic soils (pH between 4 and 7), lean from sandy to silty. Not suitable for alkaline soils with pH >7.5.
- Fundamental inoculation with specific rhizobium Alosca group S.

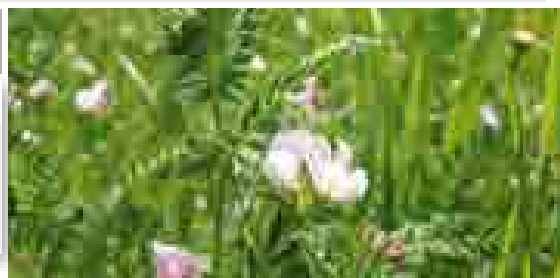
Sowing rate: 25-30 kg/ha with coated seed.

EMENA

CYCLE: Average-early cycle.

FEATURES:

- Very branched, prostrate plant.
- Green forage and pasture yield comparable to crimson clover.
- Good resistance to cold.



BLUE LUPIN

(*Lupinus angustifolius*)



BOREGINE

FEATURES:

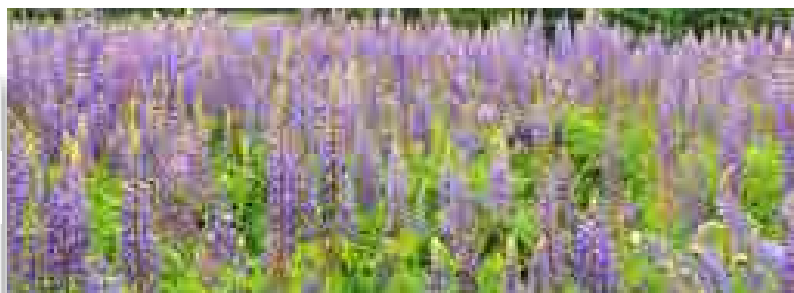
- Species suitable for the poorest and acidic soils.

SOWING:

From October to December or spring.

SOWING RATE:

60 kg/ha



COWPEA

(*Vigna unguiculata, sin. sinensis*)

FEATURES

- Annual leguminous crop with a summer cycle of tropical origin, marked by its fast growth and great hardiness.
- Within this species, specific varieties for grain (black-eyed pea) or for forage have been chosen, with significant development of the green mass.
- Optimal development takes place between 20 and 30°C, with excellent resistance to high temperatures and temporary water stress.

RED CALOONA

FEATURES:

- Use: forage (pure or in mixture), summer green manure.
- Variety specifically selected for forage use.
- Erect plant, average-tall, very leafy.
- Excellent soil coverage ability, with vigorous growth.
- Excellent forage properties, particularly due to the protein and metabolizable energy content.
- Great soil improvement effect, with low agronomic input.

SOWING RATE: 25-30 kg/ha, pure

SOWING PERIOD: minimum soil temperature of 18°C



OTHER VARIETIES AVAILABLE: CAP 312

SUBTERRANEAN CLOVER

(*Trifolium subterraneum*)



FEATURES

- This leguminous species, that has an autumn-spring life cycle, the best self-reseeding species thanks to the plant's peculiar feature of actively reburying the seeds and the high proportion of hard seeds (40-50%).
- It forms long-lasting pastures withstanding the dry summers of Mediterranean areas due to the substantial deposits of seeds in the soil, which germinate in the autumn in favourable conditions.
- Prostrate plant, particularly suitable for grazing.
- This species is the most suitable for the grassing of tree crops in Mediterranean areas, where it is reasonably tolerant to semi-shading and above all does not create any water competition with the crops in the summer period.
- The genetic improvement has created many varieties that stand out due to their minimum water requirements (AAP= Average Annual Precipitation) and cycle length. The precocity is classified in classes 1 to 9: Class 1 with 80 days from sowing to flowering; class 9 with 145 days.
- Sowing: recommended in the autumn at the rate of 25-35 kg/ha

IT CAN BE SPLIT INTO THREE SUB-SPECIES:

1. **SUBTERRANEAN** (*ssp. subterraneum*): the least sensitive to cold, suitable for acidic and loose soils, it is the most active at burying seeds. Black seeds.
2. **BRACHYCALYCINUM** (*ssp. brachycalycinum*): the most suitable for sub-alkaline and clay soils, not very good at burying seeds. Black or black-reddish seeds.
3. **YANNINICUM** (*ssp. yanninicum*): suitable for wet areas with neutral to sub-acidic soils. Light coloured seeds.

SUBTERRANEAN SUB-SPECIES

VARIETY	FEATURES
LOSA	- Very early cycle (class 2). - AAP: 450 mm - soil pH 5-7
SEATON PARK	- Early cycle (class 3). - AAP: 590 mm - soil pH 5-7
WOOGENELLUP	- Average cycle (class 5) - AAP: 550 mm - soil pH 5-7
CAMPEDA	- Average cycle (class 5) - AAP: 550 mm - soil pH 5-7
URANA	- Average cycle (class 5) - AAP: 400 mm - soil pH 5-7
DENMARK	- Late cycle (class 7) - AAP: 600 mm - soil pH 4.5-7

BRACHYCALYCINUM SUB-SPECIES

VARIETY	FEATURES
MINTARO	- Average cycle (class 5). - AAP: 460 mm - soil pH 5-8
CLARE	- Average-late cycle (class 6) - AAP: 550 mm - soil pH 5-8
ANTAS	- Average-late cycle (class 6.5) - AAP: 450 mm - soil pH 5-8



YANNINICUM SUB-SPECIES

VARIETY	FEATURES
MONTI	- Average-early cycle (class 4): the earliest of the Yanninicum types. - AAP: 500 mm - soil pH 5.5-7
TRIKKALA	- Average cycle (class 5) - AAP: 620 mm - soil pH 5.5-7
NAPIER	- Late cycle (class 7) - AAP: 600 mm - soil pH 5.5-7



Annual Leguminous Crops

ARROWLEAF CLOVER

(*Trifolium vesiculosum*)



FEATURES

- Annual clover suitable for the Mediterranean climate, where it reaches significant heights (over 1 m), with high yields.
- Erect plant with good quality forage which make it suitable for intercropping with graminaceous species.
- It spreads easily and lasts a long time in pasture lands.
- It is suitable for loose and not too calcareous soils, whereas it is not suitable for heavy soils or waterlogging. Optimal pH between 5.0 and 7.5.

CEFALU'

CYCLE: Early cycle.

FEATURES:

- Use: hay and green forage. Does not cause meteorism.
- Deep taproot that allows growth where there is a shortage of rain.
- Excellent self-reseeding ability.
- AAP: 400 mm.

SOWING RATE: 10-12 kg/ha.

ZULU II

CYCLE: Average-late cycle.

FEATURES:

- Erect plant, not very suitable for pasture, but excellent for hay production also in intercropping.
- Suitable for loose and deep soils.
- AAP: 450 mm.

SOWING RATE: 8-10 kg/ha.



BALANSA CLOVER

(*Trifolium michelianum*)



FEATURES

- Annual clover with autumn-spring cycle, suitable for regions with a Mediterranean climate.
- It is a good self-reseeding species, thanks to its high proportion of hard seeds and the formation of substantial deposits in the soil.
- It prefers clay soils, also tolerating waterlogging. It adapts to a wide range of pH from acid to distinctly alkaline with values between 5 and 9.
- Sowing rate pure: 8-10 kg/ha.



PARADANA

CYCLE: Average cycle.

FEATURES:

- Vigorous growth for an abundant winter pasture in milder climates.
- Prostrate plant for grazing, semi-erect in intercropping with graminaceous crops.
- AAP: 450-650 mm.

BOLTA

CYCLE: Late cycle.

FEATURES:

- Prolonged spring growth with possibility of exploiting the pasture compared to Paradana but lower self-reseeding ability.
- AAP: 550 mm.

BURR MEDIC

(*Medicago polymorpha*)



FEATURES

- Annual leguminous crop common in Mediterranean pastures. Very hardy and productive, resistant to intensive grazing, then providing a good spring cut.
- Excellent self-reseeding ability, respecting the plant during flowering and seed ripening.
- Particularly suitable species for technical grassing in Mediterranean areas.
- Suitable for clay soils from sub-acidic to alkaline with pH between 6 and 8.5. Tolerates slight salinity.
- It is the annual medic with the best tolerance to waterlogging.
- Sowing rate pure: 10-15 kg/ha



SCIMITAR

CYCLE: Average cycle.

FEATURES:

- Semi-erect plant.
- Variety with low proportion of hard seeds which allows good regeneration of the pasture already in the season after scattering.
- Suitable for both pasture and hay.
- AAP: 350-500 mm.

SNAIL MEDIC

(*Medicago scutellata*)



FEATURES

- Annual cycle medic, tall and erect, large seeds and vigorous, fast growing seedlings. Suitable for central-southern areas.
- Excellent and productive for making hay, but does not tolerate intensive grazing.
- Good self-reseeding ability.
- Excellent soil improving effect, with benefits for crop rotation.
- Suitable for medium textured or moderately clay soils with optimal soil pH between 6 and 8.5.

Sowing rate pure: 15-20 kg/ha

KELSON

CYCLE: Average-early cycle.

FEATURES:

- Good resistance to leaf and stalk diseases.
- Produces a high proportion of hard seeds with poor regeneration over the first year after sowing, but shows good persistence in long term pastures.
- AAP: 400 mm.

SAVA

CYCLE: Early cycle.

FEATURES:

- Variety with high proportion of hard seeds
- AAP: 300-500 mm.



BARREL MEDIC

(*Medicago truncatula*)



FEATURES

- Medic for Mediterranean climates with semi-prostrate growth, very adaptable to a wide range of soils from loose to medium texture and even clay, also in areas with not much rain in spring.
- Suitable for pastures even intensive winter and spring. Can be used for technical grassing mixed with other species.
- Does not tolerate waterlogging.
- Good self-reseeding ability, for long rotations (high percentage of hard seeds and consequent poor regeneration in the first year, but abundant from the second year). Can be used in rotations for soil improvement.
- Optimal soil pH between 6 and 8.5.
- Sowing rate pure: 10-15 kg/ha

JESTER

CYCLE: Average cycle.

FEATURES:

- Selected due to its improved resistance to medic aphids and due to the absence of leaf fungal diseases.
- Produces a high proportion of hard seeds.
- AAP: 350-500 mm.

PARAGGIO

CYCLE: Average cycle.

FEATURES:

- Lower proportion of hard seeds compared to Jester, with good regeneration already the season after scattering.
- AAP: 350-500 mm.



MIXTURES FOR FORAGE CROPS



The long-standing experience of Padana Sementi in formulating and proposing forage mixtures allows customised solutions to be offered for all requirements. The mixtures can be distinguished by:

- The formulas, which are as balanced as possible by considering not only the percentages of the different species, but also through in-depth knowledge of the individual varieties used.
- The complete range for achieving the best result both in terms of quality and quantity in each area.
- The possibility to provide customised mixtures according to the customer's indications.

STRENGTHS OF FORAGE MIXTURES

- ✓ High environmental adaptability and production potential (higher than species cultivated pure).
- ✓ Lower risk of lodging.
- ✓ Extended harvest window without risk of product quality loss.
- ✓ Balanced forage with different sources of fibre and better digestibility.
- ✓ Healthier plants with less spread of diseases.
- ✓ Mixtures with leguminous crops allow the agronomic input to be reduced and contribute to an improvement in the structure and fertility of the soil.

PERCENTAGE COMPOSITION OF DIFFERENT FORAGE MIXTURES

MIXTURE	GRAMINACEOUS									LEGUMINOUS					
	White oats	Black oats	Red oats	Bristle oats	Ryegrass	Rye	Wheat	Spelt	Triticale	Forage pea	Pea	Vetch	Crimson clover	Squarrose clover	Berseem clover
MARTE EFA	45									10	25	20			
TRITICHELO									40	30	30				
SPECIAL FIENO	41			20	35									4	
SUPER FIVE	20		10	10	29							15		6	10
GENIUS DEL SUD	25	10	10		30								20		5
PONTINO		20			45	15			20						
SPONGEBOB					15		40		27			18			
GREEN METHAN					15	32			53						
CEREAL SILO	30						40		30						
CEREAL RAPIDO	30						40		30						
CEREAL SILO PLUS	25						35	10	30						
FIENO SPELTA	20				15		45	20							
NUTRI FIBRA	45	15			40										
PADANA 70					30								70		

PADANA SEMENTI reserves the right to make variations to the compositions of the mixtures, whenever it deems appropriate for improvement purposes or variety innovation.

MIXTURE	CYCLE	USE	GROWING AREA	DISTINCTIVE FEATURES	SOWING PERIOD	SOWING RATE (KG/HA)
MARTE EFA	Early	Hay, green forage, green manure	Throughout Italy	- High forage quality (14-15% protein) - High digestibility	Autumn/ Spring	140-160
TRITICHELO	Average	Silage, green forage	Throughout Italy	- Adaptable and productive. - Good quality (12-14% protein)	Autumn/ Spring	215-225
SPECIAL FIENO	Average	Hay, green forage	Centre-south, north only in spring	- High yields and quick drying	Autumn/ Spring	80-90
SUPER FIVE	Early	Silage, hay	Centre-south	- Forage with good balance between protein and sugar - Excellent fibre digestibility	Autumn	90-100
GENIUS DEL SUD	Early	Pasture, green forage, hay.	Centre-south	- Multi-functional mix with quick regrowth. - Suitable for areas with early spring drought.	Autumn	100-110
PONTINO	Average	Hay, silage	Throughout Italy	- Mix of graminaceous crops only, very productive and resistant to lodging - Possibility of second cut of ryegrass only	Autumn	70-80
SPONGEBOB	Average-late	Silage	Throughout Italy	- Maximum yields in fertile soils - Well-balanced forage between protein and sugar and high digestibility.	Autumn	145-150
GREEN METHAN 	Average-early	Silage	Throughout Italy	- Maximises biomass yields in all conditions - Harvest directly when triticale milky ripe	Autumn	145-150
CEREAL SILO	Average-late	Silage	Central-north	- Formula with special and productive varieties (particularly wheat forage, tall oat varieties) - Harvest: direct chopping when triticale and wheat milky-waxy ripe, with pre-wilting when heading.	Autumn	170
 CEREAL RAPIDO	Early	Silage	Throughout Italy	- Formula with very early and productive varieties (particularly wheat forage, tall oat varieties). - Harvest: direct chopping when triticale and wheat milky-waxy ripe, with pre-wilting whe	Autumn/ Spring	170
CEREAL SILO PLUS 	Average-late	Silage, haylage	Central-North	- Great yield potential, due to the performances of the varieties included in the composition. - The tall plant Spelt used increase leaf content and digestibility of forage.	Autumn	170
 FIENO SPELTA	Average	Hay, haylage	Throughout Italy	- Special composition to obtain high yield and quality thanks the high leaf content of spelt. - The spelt variety included is very resistant to the common leaf diseases and contributes to produce a healthy and palatable forage.	Autumn	125
NUTRI FIBRA	Average	Hay, pasture. Silage, green forage	Throughout Italy	- Mix of different var. of OAT and ryegrass. - High fibre digestibility levels, sugar content, MFU yield. - Possibility to obtain various spring cuts of ryegrass only.	Autumn/ Spring	75-80
 PADANA 70	Average	Hay, haylage, winter grazing	Throughout Italy	- Higher protein content in hay, compared to pure ryegrass. - Excellent adaptability and productivity, easy to wilt.	Autumn/ Spring	45-50

MISCUGLI DEL SOLE - INOCULATED WITH RHIZOBIA

Le Stagioni
del Sole
foraggiere d'eccellenza



- Multifunctional mixtures suitable for winter pasture and spring harvest.
- Formulations rich in leguminous species specifically designed to maximise the quantity and quality of forage in southern environments.
- This range of products offers solutions for all zootechnical uses and for all soils, from calcareous soils rich in texture to acidic soils.

ALL THE MIXTURES ARE ALREADY MIXED WITH RHIZOBIUM ALOSCA®, FOR A MAXIMUM NITROGEN FIXING EFFECT AND AN INCREASE IN SOIL FERTILITY.



MIXTURE	CYCLE	USE	GROWING AREA	DISTINCTIVE FEATURES	SOWING PERIOD	SOWING RATE (KG/HA)
ALTUFEN Acid	Early	Winter pasture and hay	South and mild central areas.	- Suitable for light and not very fertile soils, optimal pH 5.0-7.5. - Guarantees different spring cuts.	Autumn	40-50
ALTUFEN Basic	Early	Winter pasture and hay	South and mild central areas.	- Calcareous and clay or heavy soils, optimal pH 6.5-8.5. - Guarantees different spring cuts.	Autumn	50-60
EXTRABIADA	Early	Silage, pasture, hay	South and mild central areas.	- Deep soils from loose to clay. Optimal pH 5.0-7.5. - High production potential in spring cut	Autumn	100-110
LESTRUMIX	Early	Pasture, hay, bonded hay	South and mild central areas. North with spring sowing.	- Even light and not very fertile soils, optimal pH 5.0-7.5. - Guarantees different spring cuts. - Very high quality (digestibility, sugar, protein)	Autumn/ Spring	40-50
WINTER EXPRESS	Average-early	Pasture, hay, green forage	South and mild central areas. North with spring sowing.	- Even not very fertile soils, optimal pH 6.5-8.0. - Quick establishment, excellent productivity and quality. - Guarantees different spring cuts.	Autumn/ Spring	40-45
BASIC PASTURE	Early	Pasture and spring hay cut	South and mild central areas.	- Light and lean as well as heavy soils, optimal pH 7-8.5. - Suitable for intensive grazing (annual medic) - High protein content.	Autumn/ Spring	35-40



PERCENTAGE COMPOSITION OF DIFFERENT FORAGE CROP MIXTURES

MIXTURE	GRAMINACEOUS				LEGUMINOUS											
	White oats	Black oats	Bristle oats	Ryegrass	Persian clover	French honeysuckle	Purple vetch	Crimson clover	Squarrose clover	Balansa clover	Berseem clover	Arrowleaf clover	Burr medic	Barrel medic	Strand medic	Pink serradella
ALTUFEN ACID				60	5		15	8	4	3		5				
ALTUFEN BASIC				40		25	12		4		6		8		5	
EXTRA BIADA	10	25	21	15			20	5				4				
LESTRUMIX				70	5			10		3	8	4				
WINTER EXPRESS				60	20						10		10			
BASIC PASTURE				30						5	20		20	15	10	

PADANA SEMENTI reserves the right to make variations to the compositions of the mixtures, whenever it deems appropriate for improvement purposes or variety innovation.

SOME OF OUR FORAGE CROPS IN THE FIELD:



ALTUFEN ACID in the Province of Viterbo



GREEN METHAN in the Province of Rome



SPECIAL FIENO in the Province of Salerno



PONTINO in the Province of Mantua

PERMANENT GRASSLAND MIXTURES

THE PADANA SEMENTI RANGE

- Permanent grassland is a complex system that must last a number of years. Therefore it must be chosen carefully based on the environmental conditions of the site in which it will be sowed and used, to guarantee the best result and maximum duration.
- The choice must be made with careful consideration for the plant composition and proportions between the different species.
- Padana Sementi places great attention on the choice of varieties used and their proportions, so as to obtain very productive and efficient grasslands in the various environmental conditions.
- Possibility to provide customised mixtures according to the customer's indications.

PERMANENT GRASSLANDS ARE INCLUDED IN THE DIRECTIVES OF THE NEW CAP FOR CROP DIVERSIFICATION.

Percentage composition of different permanent grassland mixtures

MIXTURE	GRAMINACEOUS										LEGUMINOUS													
	BROME	COCKSFOOT	TALL FESCUE	MEADOW FESCUE	RED FESCUE	RYEGRASS	PERENNIAL RYEGRASS	HYBRID RYEGRASS	TIMOTHY GRASS	COMMON MEADOWGRASS	COMMON BIRD'S-FOOT-TREFOIL	ALFALFA	BLACK MEDIC	BURR MEDIC	COMMON SAINFOIN	HYBRID CLOVER	RED CLOVER	WHITE CLOVER	BERSEEM CLOVER	PERSIAN CLOVER	STRAWBERRY CLOVER	BALANSA CLOVER	SUBTERRANEAN CLOVER	
ASCIUTTO PADANA	5	17	20			13	17	5			5		3		5		5	5						
ASCIUTTO BS		12	30			31	10				3				2	3	2	2	5					
IRRIGUO PADANA		12		8		15	15	10	10	5	4					8	8	5						
IRRIGUO BS		9		20		25	11		15							6	5	5	4					
PRATO PASCOLO TUSCIA		33	45								12							10						
IRRIGUO SARDEGNA		15				17	20	15										28			5			
PRATO NUOVO		30	35			10	10										15							
BASENTO			40				15				8			10	10			4					13	
GALLURA SUPER																				10		10	80	
PRATO COLLINA		22	23								22	33												
GRAMINACEE ELETTE	15	25	30	15	12					3														
SPECIALE PASCOLI							65	30										5						
PASCOLO CAVALLI	18	33			22		22			5														
PERCORSO GARA CAVALLI			80				15			5														

PADANA SEMENTI reserves the right to make variations to the compositions of the mixtures, whenever it deems appropriate for improvement purposes or variety innovation.

MIXTURE	USE	GROWING AREA	PRODUCTIVITY	PERSISTENCE	PROTEIN CONTENT	ENVIRONMENTAL STRESS RESISTANCE	DISTINCTIVE FEATURES	SOWING PERIOD	SOWING RATE (KG/HA)
ASCIUTTO PADANA	Hay/pasture	North and centre (dry); South (irrigated)	Average/High	High	Average	Average/High	- Selected and productive varieties - Balanced forage	Early autumn/ Spring	55-60
ASCIUTTO BS	Hay	North and centre (dry); South (irrigated)	Average	High	Average/low	Average/High	- Great adaptability and hardiness	Early autumn/ Spring	55-60
IRRIGUO PADANA	Hay, green forage	North, centre (only irrigated)	High	Average	Average/High	Average/low	- Selected and productive varieties	Early autumn/ Spring	55-60
IRRIGUO BS	Hay/ green forage/ overseeding	North, centre (only irrigated)	High	Average/low	Average/High	Average/low	- Quick establishment - Balanced forage	Early autumn/ Spring	55-60
PRATO PASCOLO TUSCIA	Hay/pasture	North and centre (dry); South and islands (irrigated)	Average	High	Average	Average/High	- Slow establishment, but long duration - Suitable for acidic soils	Early autumn/ Spring	50-55
IRRIGUO SARDEGNA	Hay/pasture	Islands, centre-south (only irrigated)	Average/High	Average/low	Average/High	Average/low	- Excellent quality and production potential	Autumn	30-35
PRATO NUOVO	Hay/pasture	North and centre (dry); South (irrigated)	Average/High	Average/High	Average	Average/High	- Universal grassland.	Early autumn/ Spring	60-65
PRATO PASCOLO BASENTO	Sheep/cow pasture	South (irrigated), Centre	Average	Average	Average/High	High	- Selected varieties	Autumn	50-60
GALLURA SUPER 	Sheep pasture	South and islands	Average	Average	High	High	- Leguminous Self-reseeding	Autumn	40
PRATO COLLINA	Hay, green forage	North and centre (dry); South (irrigated)	Average/High	High	High	Average/High	- High quality hay	Early autumn/ Spring	45-50
GRAMINACEE ELETTE	Hay/pasture	North and centre (dry); South (irrigated)	Average/High	Average/High	Average/low	High	- Great nitrogen use efficiency - Also excellent for horses	Early autumn/ Spring	30-40
SPECIALE PASCOLI	Hay/pasture/ overseeding	North (irrigated), Alpine range	Average/High	Average	Average/High	Average/low	- Great resistance to cold - Quick establishment	Early autumn/ Spring	50-55
PASCOLO CAVALLI	Hay/pasture	North and centre (dry); South (irrigated)	Average/High	Average/High	Average/low	High	- Withstands trampling and bare pasture - Balance of structured and digestible fibres	Early autumn/ Spring	50
PERCORSO GARA CAVALLI	Grassing	North and centre (dry); South (irrigated)	Low	Average/High	-	High	- Low growth variety - Excellent aesthetic effect - Not suitable for pasture	Autumn/ Spring	90-100

TECHNICAL GRASSING

The definition "Technical grassing" indicates perennial herbaceous plant coverage, not only for productive purposes, but particularly for functional and practical environmental, agronomic, aesthetic and ornamental purposes.

1. GRASSING FOR TREE CROPS

- Sowing appropriate species in the space between rows of tree crops (vines, fruit trees, olive trees, etc.) is becoming an increasingly common choice with widely demonstrated agronomic and environmental advantages.
- Padana Sementi has designed a grassing program to fulfil the most common agronomic requirements in the different climatic areas: continental and Mediterranean.
- **The company is also available for consultancy on the formulation of customised solutions.**

BENEFITS OF GRASSING BETWEEN ROWS OF TREE CROPS:

- ✓ **Reduction of soil** erosion caused by water and wind.
- ✓ Improvement in soil **structure** (better water permeability, better root aeration).
- ✓ Better soil **supporting** ability (facilitates human and vehicle transit in adverse conditions).
- ✓ Increase in soil **fertility** (better organic substance, increase in soil organisms, better root development).
- ✓ More **biodiversity** (activity of useful organisms for crops: pollinators, parasite predators, etc.).
- ✓ **Buffer effect** against chemical products used (fertilisers, plant protection products).
- ✓ **Reduced use of pesticides** (according to the National Action Plan).
- ✓ Improvement in the **aesthetic effect and landscape**.

Many leading companies have successfully used our grassing mixtures. Among these:



SOTTOFRUTTETO

FEATURES:

Use: Grassing for orchards and vineyards.

Growing area: Centre-north. In the south, only in places where there are no excessive summer competition problems.

- **Establishment speed:** average
- **Persistence:** average-high
- **Stress resistance:** average-high
- **Summer competition:** average-high

Distinctive features:

- Special varieties with reduced plant development with good coverage and weed control.
- Competes less with orchard compared to spontaneous grasses.
- Excellent supporting ability and resistance to trampling and shading.

PERIOD: autumn or early spring

SOWING RATE: 80-100 kg/ha

SOTTOVIGNETO

FEATURES:

Use: Grassing for orchards and vineyards.

Growing area: North, central in cooler areas.

- **Establishment speed:** fast
- **Persistence:** average
- **Stress resistance:** average
- **Summer competition:** average-low:

Distinctive features:

- Variety with reduced plant development and reduced competition.
- Good resistance to vehicle traffic.
- Limits the development of weeds and requires few cuts

PERIOD: autumn or early spring

SOWING RATE: 80-100 kg/ha

AUTORISEMINANTI

FEATURES:

Use: Grassing for orchards and vineyards in Mediterranean areas.

Growing area: Southern regions and islands.

- **Establishment speed:** average
- **Persistence:** average
- **Stress resistance:** average-high
- **Summer competition:** none

Distinctive features:

- Also suitable for lean soils from sub-acidic to alkaline (pH 6-8)
- Mixture of self-reseeding leguminous crops, very adaptable.
- Respects the grassland during flowering to allow reseeding and autumn regeneration.
- No summer competition and formation of a layer of mulch that stops weeds in hot months.
- Improves soil fertility and attracts useful insects.

PERIOD: autumn

SOWING RATE: 30-35 kg/ha



TECHNICAL GRASSING

2. GRASSING FOR SKI SLOPES AND MOUNTAIN ENVIRONMENTS

The compositions are specifically designed for grassing ski slopes, with a balanced ratio between graminaceous and leguminous species that promotes the evolution of the grassing and the renaturalisation of the grassy area. Graminaceous crops give the mixture quick establishment properties and a fast erosion containment effect, whereas the presence of leguminous crops is fundamental to balance the grassland and promote the improvement of soil with poor nutritional elements.

Padana Sementi is also able to customise the mixtures according to customer indications, also adding some spontaneous species with high natural value.

Some important steps must be taken when using these mixtures:

- Sowing period: preferably straight after the snow has melted. For autumn sowing, especially at higher altitudes, the risk factors are higher: therefore it is recommended to sow in late autumn (dormant seeding) so as to promote the germination of the seeds after thawing.
- Preparing the soil: it is recommended to use organic fertilizers, which can be available for plants long term due to their slow release.
- At the end of the season, grazing or chopping is recommended to keep the grassland compact and strong.

SKI 1000

FEATURES:

Use: Grassing ski slopes and environmental clean-ups at not high altitudes.

Growing area: hilly/mountainous areas in the centre/north. South only at higher and cooler altitudes.

- **Establishment speed:** average

- **Persistence:** average-high

- **Stress resistance:** average-high

- **Adaptability:** high

Distinctive features:

- Mixture for grassing areas from 800 to 1000 m a.s.l. (within the trees limit altitude).
- Well balanced grass/leguminous species ratio, to enable the natural ecological succession.
- Persistent species, with well developed roots and quick establishment.
- Good action against soil erosion.

PERIOD: autumn or early spring.

SOWING RATE: 200-250 kg/ha (recommended rate for hydroseeding).

SKI 2000

FEATURES:

Use: Grassing ski slopes and environmental clean-ups at high altitudes (beyond the trees limit altitude).

Growing area:

High altitudes or cold north facing slopes.

- **Establishment speed:** average

- **Persistence:** average-high

- **Stress resistance:** high

- **Adaptability:** average

Distinctive features:

- Mixture suitable for use in difficult and limiting conditions from a pedological, climatic and altimetric point of view.

PERIOD: autumn or early spring.

SOWING RATE: 200-250 kg/ha (recommended rate for hydroseeding).

Many leading companies have successfully used our grassing mixtures. Among these:



3. ENVIRONMENTAL RENATURALIZATION

- The composition should be personalised for each area: Padana Sementi is also able to offer consultancy and customised solutions in this area.
- The formulations must guarantee quick establishment and coverage in difficult conditions, without blocking the growth of local species (this is obtained with the careful choice of species and percentages).
- Possibility to add spontaneous species with high ecological value in low percentages.

SCARPATE QUOTA 1000

FEATURES:

Use: Grassing slopes and environmental renaturalization.

Growing area: Centre-north. South only in mountainous areas at higher altitudes.

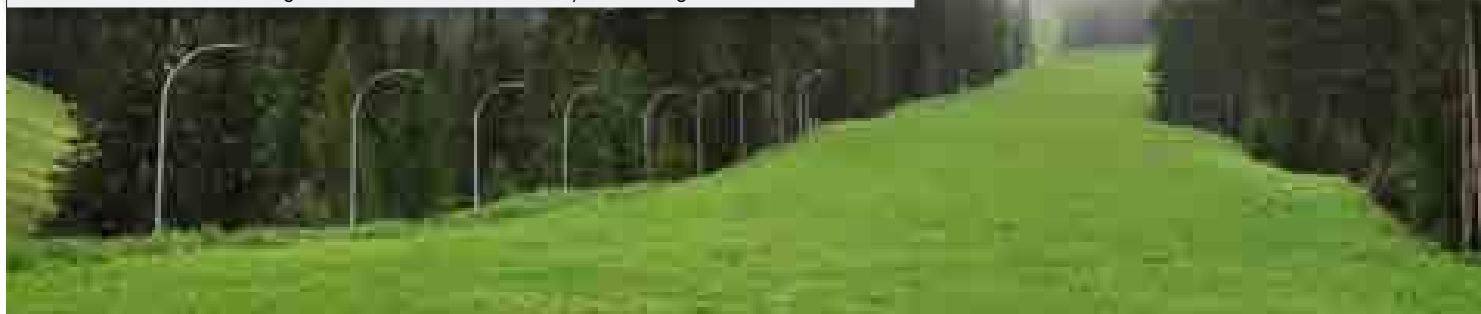
- **Establishment speed:** average-fast
- **Persistence:** average
- **Stress resistance:** average
- **Adaptability:** average-high

Distinctive features:

- Mixture for grassing from the plain to 800/1000 m a.s.l.
- Balanced and sufficiently complex formula. Good establishment ability in poor soils.
- Good drought and heat tolerance during summer.
- It is multifunctional as, where possible, it provides various cuts of good quality forage in one year.
- Quick establishment and good protection against soil erosion.

PERIOD: autumn or early spring.

SOWING RATE: 200-250 kg/ha (recommended rate for hydroseeding).



Percentage composition of the different technical grassing mixtures

GRASSLAND	GRAMINACEOUS									LEGUMINOUS								OTHERS
	Brome	Cocksfoot	Tall fescue	Red fescue	Meadow fescue	Ryegrass	Perennial ryegrass	Timothy grass	Common meadowgrass	Common sainfoin	Hybrid clover	Red clover	White clover	Subterranean clover	Common vetch	Hairy vetch	Burr medic	*Mix of spontaneous flowers
SOTTOFRUTTETO			55				35		10									
SOTTOVIGNETO				38			45		10				7					
LEG. AUTORISEMINANTI														80			20	
SKI 1000		5	14	15	6		16	9	3	11	4	5	2			5		5
SKI 2000		5		25			23	30	3		8		3					3
SCARPATE QUOTA 1000	5	10	18	13	5	12	15	7		5	4	4	2		5			

**Achillea millefolium*, *Buphthalmum salicifolium*, *Centaurea jacea*, *Cichorium intybus*, *Daucus carota*, *Dianthus barbatus*, *Galium verum*, *Leucanthemum vulgare*, *Salvia pratensis*, *Sanguisorba minor*, *Securigera varia*, *Silene flos-cuculi*, *Silene vulgaris*.

The spontaneous species content is calculated to provide a final investment of 500 seeds/m².

PADANA SEMENTI reserves the right to make variations to the compositions of the mixtures, whenever it deems appropriate for improvement purposes or variety innovation.

TECHNICAL GRASSING

4. MIXTURES FOR BIODIVERSITY

Mixtures that are characterized by the high presence of spontaneous species, with the aim of having different and lasting flowering throughout the seasons. The great added value of wild species in these mixtures lies in their extreme rusticity and very low maintenance demand and natural propagation capacity over the years, making the process of renaturalization of a site more rapid.

USES:

- Buffer strips in agricultural areas at the edges of the main crops.
- Ecological corridors in the agricultural field for sheltering useful insects and beekeeping.
- Grassing for natural areas.
- Recovery of marginal and degraded areas, with minimal maintenance.
- Grassing of tourist/landscaping interest (farmhouses, educational farms, golf courses, gardens).

MANAGEMENT:

- The optimal sowing is done in late summer on a well-prepared soil, followed by rolling. Spring sowing is also possible.
- Important starting from a clean and weed-free seedbed (recommended the practice of false-sowing).
- The fastest growing species accompany and protect the slowest wild species to develop. Perennial plants flowering can be fully appreciated starting from the second year after sowing.
- The correct mowing management, to be carried out in spring and autumn after the main flowerings, allows to keep the meadow cleaned from aggressive weeds.
- The lawn does not need fertilization (wild species are disadvantaged in an overly fertile soil).
- Irrigation can be useful during establishment, especially with spring sowing, after that it is not more necessary.

FLOWERED BUFFER STRIPS

new formula

FEATURES:

- Mixture containing **19 spontaneous perennial flowering species and 3 annuals** species.
- It is indicated for the **establishment of ecological** corridors at the edge of the crops (herbaceous, horticultural, orchards): the purpose is to accommodate useful insects and pollinators that assure the productivity of crops both in traditional and in organic farming.

USE: Apiculture, increased biodiversity in agricultural environments, environmental recovery in natural areas.

GROWING AREA: Center-North. South in cooler or irrigated areas. It can be sow up to the altitude of 1400-1500 meters.

SOWING PERIOD: Autumn or early spring.

SOWING RATE: 40-45 kg/ha, equal to 4-4.5 g/m².

SPECIE	%
F. rubra	39
L. perenne	8
Poa pratense	4
F. ovina	9
F. arundinacea	7
T. pratense	5
Lupinella	19,6
Ginestrino	3
MIX DI FIORI SPONTANEI*:	5,4
<i>Achillea millefolium, Anthemis arvensis, Betonica officinalis, Bupththalmum salicifolium, Campanula glomerata, Centaurea cyanus, Centaurea jacea, Centaurium erythraea, Cichorium intybus, Daucus carota, Galium verum, Holcus lanatus, Hypericum perforatum, Hypochaeris radicata, Leucanthemum vulgare, Papaver rhoeas, Linaria vulgaris, Sanguisorba minor, Scabiosa triandra, Securigera varia, Silene flos-cuculi, Silene vulgaris</i>	

PADANA SEMENTI reserves the right to make variations to the composition of the mixtures, whenever it deems appropriate for improvement purposes or variety innovation.

* The spontaneous species content is calculated to provide a final investment of 1000 seeds/m².

FLOWERED LAWN

new
formula

FEATURES:

- Mixture containing **25 spontaneous perennial flowering species and 3 annuals** species.
- Formula designed to enhance marginal areas with very low maintenance for ornamental and landscaping purposes.
- Indicated to obtain the most natural lawn effect from the rich and varied flowering.
- **Unbeatable rusticity and ecological value**, coupled with an attractive aesthetic result.
- Important to follow the above-mentioned management tips.

USE: Areas of tourist/landscaping interest: farms, educational farms, urban areas, golf courses, beekeeping.

GROWING AREA: Center-North. South in cooler or irrigated areas. It can be sow up to the altitude of 1400-1500 meters.

SOWING PERIOD: Autumn or early spring.

SOWING RATE: 40-45 kg/ha, equivalent to 4-4.5 g/m².

SPECIE	%
F. rubra	29
L. perenne	8
Poa pratense	4
F. ovina	15
T. pratense	5
Lupinella	18
Ginestrino	3
MIX DI FIORI SPONTANEI*:	18

Achillea millefolium,
Anthemis arvensis,
Anthoxanthum odoratum,
Anthyllis vulneraria,
Betonica officinalis,
Brachypodium rupestre,
Briza media,
Bromopsis erecta,
Bupthalmum salicifolium,
Campanula glomerata,
Centaurea cyanus,
Centaurea jacea,
Centaureum erythraea,
Cichorium intybus,
Daucus carota,
Filipendula vulgaris,
Galium verum,
Holcus lanatus,
Hypericum perforatum,
Hypochaeris radicata,
Leucanthemum vulgare,
Papaver rhoeas,
Sanguisorba minor,
Scabiosa triandra,
Securigera varia,
Silene flos-cuculi,
Thymus pulegioides,
Trifolium rubens



* The spontaneous species content is calculated to provide a final investment of 2000 seeds/m².

PADANA SEMENTI reserves the right to make variations to the composition of the mixtures, whenever it deems appropriate for improvement purposes or variety innovation.



COVER CROPS

In modern agriculture, which is attentive to environmental issues, the term Cover Crop means the planting of a herba-ceous crop with the main aim of protecting the soil.

The practice aims to:

- FIGHT EROSION
 - LIMIT COMPACTING AND LOSS OF STRUCTURE OF THE SOIL
 - STOP NUTRIENT LEACHING
 - INCREASE NUTRIENTS (NITROGEN FIXING)
 - LIMIT THE DEVELOPMENT OF WEEDS
 - INCREASE ORGANIC SUBSTANCE
 - INCREASE THE BIOLOGICAL ACTIVITY OF THE SOIL
- The Cover Crop is generally left on the soil or buried (green manure).
Green manure, in particular, based on the species used, enriches the soil with nitrogen and organic substance (humus), or enables an allelopathic and biocidal effect against nematodes and fungal diseases.
 - The benefits of cover crops, while not providing an immediate revenue, fully pay back the costs disbursed by the farm, both in terms of better production levels and lower costs for the subsequent crop. In the long term the benefit of this practice is expressed in the increased soil fertility.
 - Cover crops are included in "conservative agriculture" practices supported by the European Union, so as to make immediate use of the direct help provided as part of regional subsidies.

Padana Sementi, looking towards sustainable agriculture, has been studying and experimenting for years with mixtures suitable for this practice in the different crop and environmental systems. The result of this commitment is the range of products which are divided into groups due to the various objectives:

1. NITROGEN ENRICHING CROPS
2. CROPS WITH BIOCIDAL ACTIVITY
3. CROPS FOR INCREASING STABLE HUMUS AND IMPROVING THE SOIL STRUCTURE



1. NITROGEN ENRICHING CROPS

Leguminous crops, by means of root symbiosis with nitrogen fixing bacteria (rhizobia), can convert atmospheric nitrogen into organic nitrogen, permanently enriching the soil with this fundamental nutritional element. The biomass produced is also marked by its low C/N ratio, and rapid degradability in the soil.

CRIMSON CLOVER

FEATURES:

Autumn spring crop, can be used throughout Italy. Very resistant to winter cold, abundant spring flowering attractive to useful insects.

SOWING PERIOD: from October to November.

SOWING RATE: 25-30 kg/ha.

VARIETY: ALBEROBELLO, PIER (see page 30).

BERSEEM CLOVER

FEATURES:

In the centre-south it can be used with autumn sowing and spring burying at the start of flowering.

SOWING PERIOD: Usable in the north with sowing at the end of summer, the crop dies with the first frosts. This allows the sowing of the spring crop without any further processes.

SOWING RATE: 20-25 kg/ha.

VARIETY: LAURA, MARIO (see page 31).

VETCH

FEATURES:

Autumn-spring leguminous crop which can be used throughout Italy, with the best nitrogen fixing ability.

SOWING PERIOD: from October to November.

VARIETY: VILLANA (hairy vetch) (see page 32).

SOWING RATE: 75 kg/ha.

VARIETY: CUMBRE, BUZA (common vetch) (see page 32).

SOWING RATE: 90 kg/ha.

FABA BEAN

FEATURES:

Autumn-spring crop particularly suitable for the centre-south. It has a very deep root apparatus (improvement of the soil structure) and great nitrogen fixing ability.

SOWING PERIOD: from October to December.

SOWING RATE: 200 kg/ha.

VARIETY: PROTHABON 101 (see page 33).

LUPIN

FEATURES:

Species suitable for the leaner and more acidic soils of the centre-south.

SOWING PERIOD: from October to December.

SOWING RATE: 60 kg/ha.

COWPEA

FEATURES:

Summer leguminous crop very resistant to heat and water stress. It is used in the open field or in rotations with vegetable crops even in greenhouses during the summer period. Fast cycle (about 60 days).

SOWING PERIOD: from May to July.

SOWING RATE: 25 kg/ha.

VARIETY: RED CALOONA (see page 35).

NITROFERT

FEATURES:

Composed of hairy vetch, common vetch and oat.

- The high percentage of vetch guarantees a significant contribution of nitrogen, whereas the oats increase the organic substance yield. This formula is the safest and most balanced choice for an excellent result in terms of coverage and quality of green manure. The best effect is obtained by burying the crop when the vetch starts flowering.
- Early cycle.

SOWING PERIOD: October-November or early spring.

SOWING RATE: 75-100 kg/ha.

USE: suitable as green manure in the alleys of tree crops, as cover crop during the cold season for spring and summer-cycle crops.



COVER CROPS

2. CROPS WITH BIOCIDAL ACTIVITY

Nematodes and fungal diseases of the soil are a problem that can be easily solved without using harmful chemical products, but by exploiting the natural properties of some cultivated species.

BRISTLE OAT

FEATURES:

Excellent green manure species with nematocide activity against *Pratylenchus*, and ability to reduce nutrient losses (catch crop).

SOWING PERIOD: from October to December.

SOWING RATE: 70 kg/ha

VARIETY: SAIA 6. (see page 28)

NEMATODE RESISTANT OIL SEED RADISH

(*Rafanus sativus oleiformis*)

FEATURES:

- The varieties selected to contain nematodes work as they act as plant traps that attract these parasites to become established in their roots, but do not let them complete their life cycle.
- Species with a short cycle: in about 60 days they can flower.
- Very developed taproot system, with dual nematocidal and soil decompacting effect. Excellent coverage and weed composing effect.
- Good resistance to cold, can be sowed in autumn in northern Italy too.

SOWING RATE: 20-25 kg/ha

VARIETY	FEATURES:
ANACONDA	- Variety marked by the dual resistance to <i>Meloidogyne chitwoodii</i>, <i>M. fallax</i> and <i>Heterodera schachtii</i>. - Very quick establishment and regrowing ability which, when possible, allows a cut to be performed leaving the regrowth to flower to further increase the nematocidal action.
ADIOS	- Variety with very quick establishment. - The variety is resistant to the nematodes <i>Heterodera schachtii</i> and <i>H. betae</i>. Partially resistant to the nematode <i>Meloidogyne chitwoodii</i>. - Over 90% reduction of the infestation of these parasites is possible.
RADICAL	- Compact size and very leafy, quick to grow back after the first cut. - Substantial biomass production. - Resistant to the nematodes <i>Heterodera schachtii</i>, <i>H. betae</i> and <i>Pratylenchus scripnerie</i>.
TERRANOVA	- Covers the soil quickly and has an excellent resistance to lodging. - It has a wide resistance spectrum and consequent nematocidal effect: it is resistant to the sugar beet nematocides <i>Heterodera schachtii</i> and <i>H. betae</i>. It is also resistant to <i>Meloidogyne chitwoodii</i>, <i>M. fallax</i> and <i>M. incognita</i>, <i>Pratylenchus scripnerie</i>, <i>Paratrichodorus allius</i>, <i>Trichodorus primitivus</i>.
OCTOPUS	- Average cycle variety with expanded leaves that ensure rapid soil coverage and competition against weeds. - The rooting depth associated with high biomass production makes it a very effective catch crop for nitrogen recovery.
FINAL	- It is the most susceptible variety to winter frost, and is therefore an excellent solution when looking for a crop that after winter doesn't need any additional pass to kill the crop. - Very high resistance to beet-cyst nematodes: <i>Heterodera schachtii</i> and <i>H. betae</i>.

WHITE MUSTARD

(*Sinapis alba*)

FEATURES:

- The species is naturally susceptible to nematodes. Genetic improvement has created varieties that are absolutely resistant to these parasites, therefore the nematocide effect is comparable with horseradish.
- Very developed taproot that can reach 1.5 m depth.
- Very quick life cycles (50-55 days to flowering in spring).
- Mustard is susceptible to winter frost therefore it should be sowed in spring-summer in the north, but can be sowed in autumn in areas with mild winters.

SOWING RATE: 20-25 kg/ha

VARIETY

FEATURES:

ATTACK

- Tall plant, quick establishment and soil coverage.
- Resistant to the sugar beet nematodes *H. schachtii* and *H. betae*. Does not host (reduces the spread of) the following nematodes: *Globodera rostochiensis/pallida*, *Heterodera avenae*, *Heterodera trifolii*, *Heterodera goettingiana*, *Meloidogyne naasi*, *Ditylenchus destructor*.

ARCHITECT

- A late cycle variety that has marked activity against the sugar beet nematodes *Heterodera schachtii* and *H. betae*.
- Average sized plant with good soil coverage and good resistance to lodging.
- Shows excellent resistance to the main diseases.

SIGNAL

- Suitable for use as a cover of soil and green manure.
- Good resistance to winter frozen with late sowing (mid-October/November).
- Excellent grain producer.
- Low nematocidal activity.

OCTOPUS

new

- Variety that stands out for its high branching capacity.
- Very frost susceptible with early sowing (August-beginning of September). It is a good option as catch crop to prevent nitrogen leaching.
- The variety has no nematicidal effect.

NEMATODE RESISTANT ROCKET LETTUCE

(*Eruca sativa*)

FEATURES:

This species which is very well known as a vegetable for eating, thanks to some carefully selected varieties, can guarantee excellent effects both as a nematocide crop and as a biofumigant. It can be sowed all year round.

VARIETY

FEATURES:

TRIO

- The first rocket with a dual use: vegetable for with a pleasantly spicy flavour and a nematocide and biofumigant effect
- It has guaranteed activity against *Heterodera schachtii*, *Meloidogyne chitwoodii*, *M. hapla* and *M. incognita*.
- Once it is buried it performs a fumigating action on soil fungal diseases (contains high concentrations of glucanerin).
- Cycle: 55-60 days from sowing to flowering.
- **SOWING RATE:** 10 kg/ha.

NEMATOX

FEATURES:

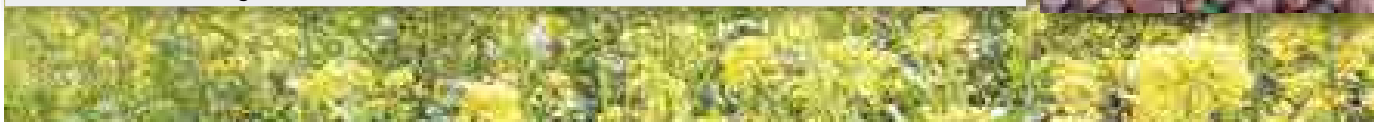
Mixture composed of special cultivar of oil seed radish and rocket lettuce.

- The best solution for horticultural rotation. Ensure the best control against nematodes *Meloidogyne chitwoodii*, *M. fallax*, *M. incognita*, *M. javanica* and *Heterodera schachtii*.
- Burying at flowering start (50-55 days with spring sowing). To extend the soil cover and improve the nematicidal effect, mow it before flowering to have a second tiller.

SOWING PERIOD:

All year round, from spring to autumn, depending on the cropping system. The rocket lettuce seeds have a special coating (see photo) that allows to have a great mixing and sowing homogeneity.

SOWING RATE: 20 kg/ha.



COVER CROPS

BIOFUMIGATION

There are essentially two types of crops used for **biofumigation**:

- 1. Sudan grass hybrids:** production of hydrogen cyanide and relative release into the soil after burying the biomass.
- 2. Brassica crops** (horseradish, mustard, rocket, etc.): production of glucosinolates that develop isothiocyanate in the soil

For brassica crops, biofumigation takes place by chopping and burying the biomass which allows the glucosinolates contained therein to be transformed into isothiocyanates.

These substances have a toxic effect on significant soil fungal diseases.

The **BioFum®** mixtures proposed here represent the maximum biofumigating effect: the varieties included in the mixtures associate a high glucosinolate content with the substantial production of biomass and leaves.

In the greenhouse tests it was shown that these mixtures contain the development of the following fungi:

- *Gaeumannomyces*,
- *Rhizoctonia*,
- *Fusarium*,
- *Helminthosporium*
- *Pythium*.



MANAGEMENT

The use of these mixtures involves chopping the crop at 60-80% flowering and then quickly burying within 30 minutes. Immediate burying with a combined machine is ideal (see photo).

To maximise the fumigating effect it is useful to provide light irrigation after burying (10 mm).

The soil can be worked 2 weeks later and after another 2 weeks the next crop can be sowed.

SOWING RATE: 15 – 20 kg/ha. The highest rate for heavy soils.

MIXTURE	FEATURES:
BIOFUM SUMMER	- Biocidal mixture for spring sowing comprising: Ethiopian mustard, horseradish, white mustard. - Very quick to develop. - The best time for incorporation should not be no later than the end of September. - Sowing period: from March to July.
BIOFUM AUTUMN	- Biocidal mixture comprising: Ethiopian mustard, horseradish, rapeseed - BioFum Autumn is a mixture with early vigour and late flowering. - It is well adapted to autumn-spring rotation due to its resistance to winter frost. - Sowing period: September, October.
Brassica Juncea var BRONS	- High content of sinigrin, that which makes it possible to control many soil pathogenes. - Low resistance to frost, especially with early autumn sowing. - The incorporation of this plant in the soil allows to significantly control following fungi in the the soil: Scelrotinia, Pythium, Fusarium, Rhizoctonia. SOWING RATE: 8-10 kg/ha
Brassica Carinata var UTOPIA	- The high content of the glucosinolate sinigrin allows a good biofumigation effect. - The variety produces very large leaf, and has fast growth and soil covering that allow good weed suppression. - The deep and branched root system works well to improve soil structure and to catch phosphorus and nitrogen. - Low resistance to frost, especially with early autumn sowing. SOWING RATE: 12-15 kg/ha

3. CROPS FOR INCREASING STABLE HUMUS AND SOIL STRUCTURE

- Crops with a high fibre content and high C/N ratio are used to increase stable humus.
- They do not yield nitrogen and nutrients quickly, but allow the formation of stable humus and improve fertility in the long term (reserve of substances, improvement in physical and biological fertility).
- The species with developed and deep root apparatus allow the porosity of the soil and its water and air permeability to be increased.

STRUCTURATOR (*Raphanus sativus*)

FEATURES

- Fast cycle (about 50-55 days with spring sowing). Special horseradish variety suitable to work in depth compacted soils, blocking also the leaching process.
- The unmistakable feature is the extremely developed taproot (see photos) with high penetration ability (50-60 cm depth).
- At the end of cultivation, large holes remain into the soil giving an excellent drainage.
- Extremely rapid development and expanded leaves ensure a good soil cover and competition against weeds.
- Poor activity against nematodes.

SOWING PERIOD: The optimal seeding period for maximum development is in late summer (within mid-September). Early sowing allows to partially finish the cultivation at winter frost, in Northern Italy. However, it can be sown throughout the year.

SOWING RATE: 6-8 kg/ha with precision sowing, 9-12 kg/ha with broadcast sowing.



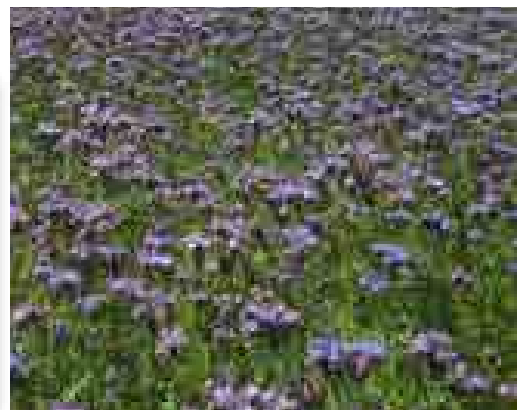
PHACELIA (*Phacelia tanacetifolia*)

FEATURES:

- Very hardy species and also adaptable to marginal land.
- Well developed root apparatus with great ability to absorb and withhold nutrients (catch crop).
- Strong competitive, coverage and containment action against weeds, does not act against nematodes.
- Important melliferous plant, due to its abundant and prolonged flowering.
- It is sowed in autumn in areas with a mild winter and in spring in cold areas.

SOWING RATE: 10-15 kg/ha.

VARIETY: ASTA.



HUMUSFERT

FEATURES:

- Comprising barley, bristle oats and crimson clover, this mixture is used all over Italy with autumn sowing.
- Its great productivity, hardiness and precocity make it suitable for all pedoclimatic situations.
- Suitable for being chopped and buried, or for being rolled or cut and left as mulch (e.g. in between rows of tree crops).

SOWING: from October to November.

SOWING RATE: 85 kg/ha.



ESTA-FERTIMIX

FEATURES:

- Summer forage crop comprising: climbing bean, pearl millet and Sudan grass.
- Green manure that enriches the soil with organic substance, minerals and nitrogen. Excellent C/N ratio in the biomass produced.
- Excellent tolerance to drought at high temperatures, particularly suitable for greenhouse conditions.
- Cutting and burying: according to discretion, wait until the millet is at least 100-120 cm tall (60 days), for good biomass production.

SOWING: Spring, when the soil temperature is at least 16-18 °C.

SOWING RATE: 25-30 kg/ha, at the depth of 3-4 cm.

ALOSCA INOCULANTS

ALOSCA® RHIZOBIA: INNOVATIVE TECHNOLOGY TO GUARANTEE EXTRAORDINARY PERFORMANCE LEVELS

Padana Sementi continues to focus on innovation, proposing cutting edge technology for Italy exclusively for the bacterialization of leguminous forage crops.

With ALOSCA® rhizobia the farmer produces nitrogen directly in the field at a low cost!!

Why bacterialization is important

Root bacterial symbiosis is fundamental for all leguminous crops for:

- Fixing atmospheric nitrogen (and consequent soil enrichment)
- Increasing plant vigour
- Healthier plants and greater resistance to environmental stress

Symbiosis is a process that happens naturally in the soil, as long as there are enough specific bacteria present for the cultivated species. In unfavourable soils (acidic, alkaline, etc.) or where the affected species haven't been grown for a long time, these microorganisms tend to diminish until they disappear.

WHAT ALOSCA® IS AND WHAT ITS ADVANTAGES ARE

Alosca inoculants comprise a substrate of bentonite granules, sized between 1 and 3 mm, inside which there are selected strains of nitrogen-fixing bacteria. This particular coating guarantees excellent protection for the bacteria both in packages (which can be kept for two years at temperatures from 0 to 60°C) and in the soil where they remain dormant until favourable environmental conditions allow the proliferation of the microorganisms in contact with the root apparatus and therefore quick and abundant nodulation (see graph).

ADVANTAGES OF THIS TECHNOLOGY:

- Increases **nitrogen fixing up to 50% more** for some species, allowing it to be made available for the next crop.
- Increases crop productivity in adverse situations (acidic soils).
- Increases the protein content of the forage.
- The product maintains its potential constant for a long time (easy storage).
- Extremely simple application, which consists of mixing the granules directly with seeds or with fertilizer. Also applicable for sowing on firm ground.
- Can easily be transported and distributed even in non-optimal conditions (e.g. dry soil, high temperatures)
- Can also be mixed with seeds treated with fungicides or other pesticides, without its efficacy being compromised.

This technology has been fully validated by some important research centres:

- Murdoch University Centre for Rhizobium Studies
- Western Australia Department of Agriculture

Detailed experiments are currently in progress also in Italy, at the University of Catania and the ISPAAM institute of the CNR in Sassari.



**Table: Effect of inoculation with rhizobium Alosca on some leguminous crops.
(Padana Sementi Elette data)**

	Crimson clover VITERBO			Pink serradella EMENA		
	NT	RIZ	Increase (%)	NT	RIZ	Increase (%)
no. plants	40	40		40	40	
fresh plant weight (g)	90.3	141.6	56.8	174	341	96

	Pea AMICAL			Forage pea RHEA		
	NT	RIZ	Increase (%)	NT	RIZ	Increase (%)
no. plants	30	30		20	20	
fresh plant weight (g)	540	680	25.9	670	780	16.4
fresh seed weight (g)	190	258	35.8	200	230	15.0



Alosca rhizobia, specifically for annual and perennial clover (group C), Pink serradella and Lupin (group S), Alfalfa (group AL), Pea, Faba bean and Vetch (group F), Annual medics (group M), are already mixed in the following products:

Forage Mixtures	Mixtures for permanent grasslands	Alfalfa	Individual species
Mixed in the whole "Miscugli del sole" range Super Five Genius del Sud	Gallura super Prato pascolo basento Self-reseeding Irriguo sardegna Asciutto Padana Irriguo Padana Prato Nuovo	Rhizobium group AL mixable with all the varieties in the catalogue	Specific rhizobium to be mixed when sowing available for all the species indicated by the brand 

NOW AVAILABLE ALOSCA® POWDERED RHIZOBIUM SPECIFIC FOR SULLA.



Effetto di una corretta inoculazione su sementi di Sulla

TURF SEEDS

- A significant part of Padana Sementi's business comes from turf seeds thanks to constant investments in research and innovation in this sector.
- New turfgrass varieties with unique disease, trampling, drought or intense heat resistance features, as well as resistance to cold winters especially come from abroad, mainly in the USA, Denmark and Holland.
- These varieties are assessed in our test fields and after strict agronomic tests they are added to the different formulas.



TOP CLASS and TOP CLASS 4 SOD:

Mixture of top quality seeds especially formulated for professional use and differentiated so as to respond better to the different requirements. All the Top Class formulations follow rigid control procedures and contain the most recent and innovative varieties identified by research.

TOP CLASS 4 SOD:

this is a line intended for sod producers in which, as well as the best varieties, the lots with the highest purity are used.

More than 50 sod producers in Italy currently use TOP CLASS 4 SOD!



TOP GREEN:

Semi-professional mixtures, marked by a very wide range of formulations, which can satisfy all needs, from a small garden lawn to a large football field.



NATURAL GARDEN:

Mixtures of top quality American seeds ensure the quality standards of the professional line for domestic users. They are also marked by very low maintenance requirements with very few cutting and irrigation needs.



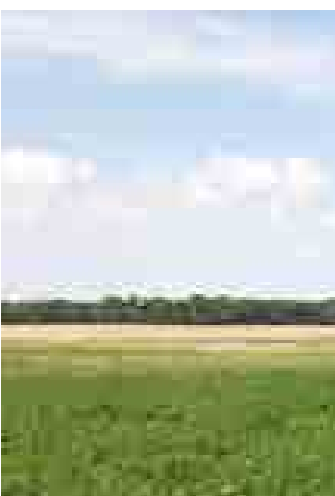
TOP GREEN:

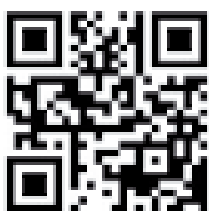
This line comprises a special range of individual species, macro and microthermal, presented in different packages, which aim to meet specific needs.

Specific and detailed brochures are available for the different lines.

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MAKING BETTER SEEDS

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