Our development is deeply rooted

“When the ecological awareness, the research and the introduction of new technologies create together advantages both for the consumer and for the product quality, then we are really talking of innovation and progress.”
Mauro Saviola Group

• 16 Companies belong to the Group
• 1630 employees
• 577 millions of euro consolidated annual turn over
• 1,500,000 MT of recycling wood per year (it means 10,000 trees saved every day)
• Italian leader of the particleboard industry and the third in Europe
• Mauro Saviola Group is active in 50 countries
• More than 1,000 trains of recycling wood collected in Europe every Year
• 175 trucks belong to the Group for the collection of recycling wood and to deliver the panels
• 16 different certifications of quality system, among these the ISO 9002, EMAS, E1 Catas Quality Award, Certiquality 100% and “FSC 100 % recycled”
• 1,500,000 mc of particleboards sold every year all over the world to produce furniture, waterproof ecological panel, fireproof ecological panel, flooring, …
• 5 Research Institutes to study and design the range of creative decorative elements
Mauro Saviola Group
Agriculture Division

• The main European producer of Methylene Urea
• Two production plants of Methylene Urea (Viadana – Italy and Genk – Belgium)
• Production process is a new patented technology, unique to achieve MU in granular forms (round granules), yielding the lowest content of unreacted urea and salinity index
• Worldwide biggest plant to produce Methylene Urea in granular form (potentiality of Pilot Plant 35,000-40,000 MT/year)
• Among the main European urea importers (over 300,000 MT/year)
Sadepan Chimica’s Factories to manufacture Methylene urea

- Liquid Methylene-urea
  Genk (Belgium)

- Granular MU/UF
- Liquid Methylene-urea
  Viadana (Italy)
Sadepan’s **Methylene urea/ Urea Formaldehyde** uses new technology to produce the most completely reacted product on the market today. The position of Sadepan as a basic producer of Formaldehyde and the largest consumer of Urea in Italy insures a competitive position in the market place.

**Mission**

It is our mission to use our improved technology and strength as a basic producer to become a reliable supplier to the world for superior quality methylene urea fertilizer.
INNOVATIVE FERTILIZERS

These fertilizers can be called innovative and are advantageous because they:

- Improve the yield with greater productions (greater efficiency)
- Reduce the costs and the cultural practices
- Reduce or eliminate the impact on the ecosystem
An ideal nitrogen fertilizer should have the following characteristics (Shoji and Gandeza, 1992):

- with only one application satisfy the crop nutrients requirement during the whole vegetative-productive cycle;
- Have the greatest % of crop utilization (uptaking); the average amount usually uptaken from the crop is maximum 50-70% during the first year of application (Fink, 1992);
- without any negative environmental impact

The ideal choice is slow Release Nitrogen
The raw materials used are:

• Urea \((\text{CO(NH}_2)_2)\)

• Formaldehyde \((\text{HCHO})\)

The urea can be of national production or imported.

The formaldehyde is produced by Sadepan Chimica through a catalytic oxidation process of methanol \((\text{CH}_3\text{OH})\). in 9 plant.

The Sadepan Chimica MU/UF production process can be summarized into 2 phases:

1) synthesis of the urea-formaldehyde syrup, which is alimented into the granulation plant;

2) granulation with the final screening of the finished product.
1° phase: synthesis of the urea-formaldehyde syrup

- this phase takes place into the polymerization reactors, in which the syrup is obtained;
- at the beginning, the formaldehyde and a part of urea react in controlled conditions;
- later on, the remaining urea is added up in different steps to obtain the short polymeric chains;
- making this, it is possible to obtain a product with a good distribution of the molecular weights, which positively affect the availability of the finished product.
"2° phase: granulation with the final screening of the finished product

• the liquid syrup is alimented in a fluid bed granulator where polymerization, drying contemporary granulation take place;"
Flow chart Process of Granulation Plant

Production capacity per year of the Pilot Plant
35,000 – 40,000 MT
INNOVATIVE PHYSICAL ASPECT

• Round granules with high U.I.

Less dust in Sadepan’s MU/UF during production
Less friction during blending operations with others round granular raw materials
The final product is a spherical granule having SGN that, in choice, could be included between 100 and 360 or in Chip size with SGN 40 as well.
Granular – Std Size
( SGN 215 )

SADEPAN MU/UF GRANULAR SIZE
CUMULATIVE PASSING DISTRIBUTION

SGN = 215
U.I. = 70
Powder content < 1%

Ecotechnology
Large granular - BigSize
( SGN 345 )
Greens grade - Microgranular SGN 110
Chip size SGN 40
SADEPAN MU/UF products obtained by the new technology have:

**INNOVATIVE PHYSICAL ASPECT**
- Round granules with high U.I.
  - Less friction during blending operations with others granular raw materials
  - Less dust in MU/UF Sadepans during production

**INNOVATIVE TECHNICAL ADVANTAGES**
- The most completely reacted products
- Unreacted N-urea content $\leq 4.5\%$
- The lower Salt Index
  - Salt index $\leq 1\%$

EcoTechnology
Sadepan MU SGN 110 initially released about the same quantity of N as Competitor A chip size but by 84 days after application Competitor A chip size had released all of its available N and Sadepan MU SGN 110 continued to release N for the entire 182 period.

Source By J.B. Sartain- University of Florida
INFLUENCE OF N SOURCE ON N RELEASED OVER TIME

“Competitor B chip size released in excess of 55% of its applied N within the first 7 days after application”

Source By J.B. Sartain- University of Florida
“Sadepan’s UF produced a N release curve very similar to competitor UF”

Source: J.B. Sartain - University of Florida

SADEPAN CHIMICA UF granular size
Nitrogen release curve Vs competitors
Effects of Various Fertilizers on the Overall Quality of 'Better Boy' Tomatoes

Quality Rating (1 - 9 scale) w/ 1 = dead; 9 = full development and no injury

Source By Warren Davenport - PATH Consulting – Rydal, Georgia

- SADEPAN MU 80 @ 3.78 gms N/pot
- SADEPAN UF @ 3.78 gms N/pot
- Polymer coated competitor A @ 3.78 gms N/pot
- Polymer coated competitor B @ 3.78 gms N/pot
- Control (no fertilizer)
SADEPAN CHIMICA studies from greenhouse conditions on N – SENSITIVE CROP

Effects of Various Fertilizers @ 3 Rates on the Injury of 'Janie' Marigolds

Injury Rating (0 = no injury; >2 = objectionable; 10 = dead)

Source By Warren Davenport - PATH Consulting – Rydal, Georgia
Effects of Various Fertilizers on the Overall Quality of 'Janie' Marigolds

Quality Rating (1 - 9 scale w/ 1 = dead & 9 = full development and no injury)

Source By Warren Davenport - PATH Consulting – Rydal, Georgia
INFLUENCE OF N SOURCE ON ROOT DRY WEIGHT OF BERMUDAGRASS GROWN IN TUBS IN THE GLASSHOUSE

Source By J.B. Sartain- University of Florida
INFLUENCE OF N SOURCE ON TOTAL QUANTITY OF N LEACHED FROM BERMUDAGRASS

Source By J.B. Sartain- University of Florida
Thank you for your kind attention