Future Innovation
Right Solutions Technologies

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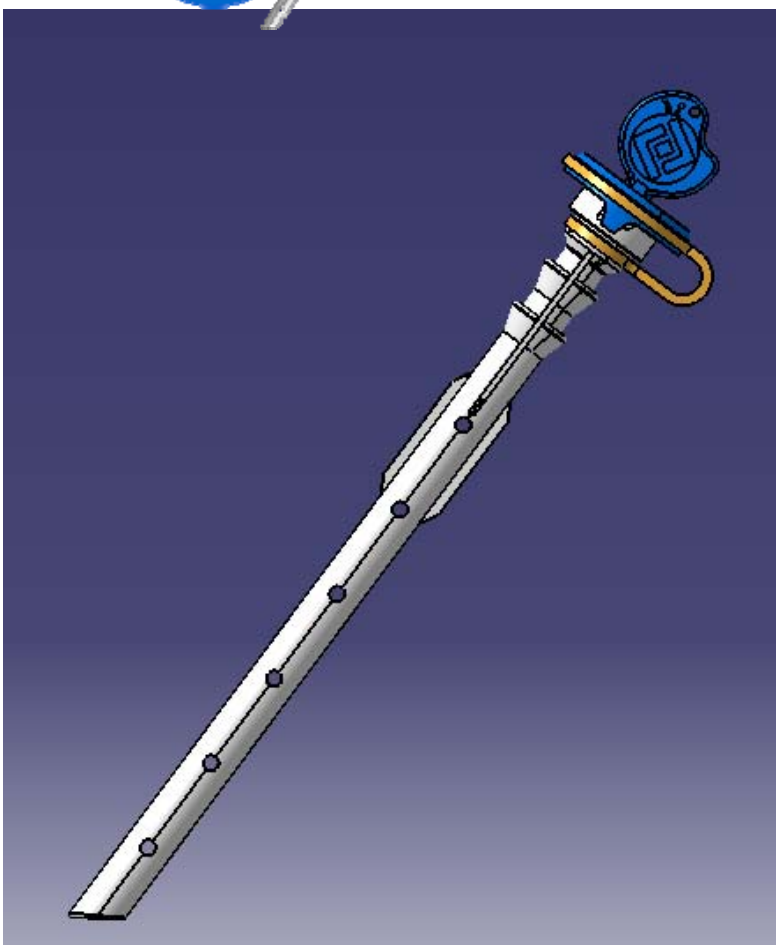
SOSFIRST System

IPM against RPW



the producer of

electrap
RED PALM WEEVILS
FINAL SOLUTION

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1. RED PALM WEEVIL

The Red Palm Weevil is a Coleoptera from the Southeast of Asia, which attacks the family of Aracaceas, killing specimens of palms.

The life cycle of the pest, let them make up to two generations per year. Each female lays from 300 to 400 eggs, these eggs hatch after 4 or 5 days and the larvae born grow inside of the palm, causing serious damage and threatening the survival of the tree. After 90 days, it comes to the pupal stage, and, after 30 days, an adult sexually mature and ready to mate is ready to continue its deadly dance.

2. HOW TO DETECT THE PEST

The symptoms in a palm tree **already** affected by the red palm weevil vary depending on whether it is a Phoenix Canariensis, Washingtonia or a Phoenix Dactilyfera.

The appearance of eaten young leaves, the stipe tilt or falling leaves can be an easy way of detection, but it turns complicate when the attack is at the stipe. We can see fermented sap exudation.

3. HOW TO PREVENT INFECTION

The best practice to prevent the infection and maintain the palms protected is articulated on two different levels:

- Mass trapping of flying RPW with ELECTRAP
- Timely caring the already attacked palms with SOSFIRST

Also the proper management of pruning, of course, can help to maintain the palms healthy.

4. CONTROL METHODS

The integrated use of endotherapy together with ELECTRAP in the control of red palm weevil offers significant advantages over other techniques, and it is an effective and economical method.

The injection of a small dose of insecticide in the stipe of the palm causes that the palm tree distributes this insecticide in the entire stem, inducing the death of the larvae.

The SOSFIRST system offers, as an added advantage to the traditional Endo, the maintaining of a peg fixed in the palm, (patented method: fixed system and airtight), that let us not to repeat the holes, avoiding unnecessary damage to the specimen and improving the performance of workers when performing subsequent treatments.

The SOSFIRST peg is specially designed to fit the palm stipe, remaining fixed in the same place in which it was installed. For a proper operation over time, it is important a proper installation, by applying a pruning putty in the outer area of the peg that is in contact with the palm. This outer and inner seal, a special design feature, prevents that the palm closes its vascular bundles and hold their functionality over time.

For the system to be functional, we have to inject systemic products that, in contact with the sap, are translocated and distributed by the apical meristem. When the larvae eat and make the holes, they ingest a lethal dose of insecticide that causes their death.

The SOSFIRST system is effective in both curative and preventive treatments, but it is in curative treatments where we obtain its better performance, while the preventive action is better carried out by ELECTRAP.

Anyway, if we have insecticide in movement through the sap of the palm tree, when the eggs hatch, a larva of just 2 or 3 grams starts to eat and drill and, because of its small body weight, the lethal dose needed is very low and in less than two or three days the larva dies without causing any damage to the palm tree.

In the evolutionary phases of RPW that needed lethal dose is higher, so the larva remains eating, then dying, but causing more damages.

Dosing the insecticide into the peg is an easy task, but it requires some precautions inherent to the use of insecticides (see below point 5).

5. SUGGESTED TREATMENT PROCEDURES

Endotherapy System
SOSFIRST
for IPM of RPW

A. Preparing the solution for the injection (doses per peg)

In a standard date palms install 2 SOSFIRST 17 injectors per palm at the same height and opposite side (forming 180" angle) at 45" degrees inclination with the ground.

~~Product~~ Dose per peg	Imidacloprid	Abamectina	Thiamethoxam
Quantity of product per peg	3 ml	3 ml	2 gr
Distilled water per peg	10 ml	10 ml	10 ml
Total solution per peg	13 ml	13 ml	12 ml

B. Plan of suggested treatments

January	February	March	April	May	June
Abamectin	Imidacloprid	Abamectin	Tiametoxam	Imidacloprid	Imidacloprid
July	**August**	**September**	**October**	**November**	**December**
Imidacloprid	Imidacloprid	Thiamethoxam	Imidacloprid	Thiamethoxam	Abamectin

Alternation of pesticide is recommended to avoid resistance

C. Products to be injected in SOSFIRST pegs

Active substance	Major Int'l Trademarks
Imidacloprid 20%	Confidor, Imidor, etc.
Abamectin 1.8%	Vertimec, Dauparex, Abasi, Romectin, etc.
Thiamethoxam 25%	Actara 25 WG

DON'T mix products in the same application!

D. Treatment frequency

12 treatments per year, each one every 30 days.

E. INTEGRATED CONTROL

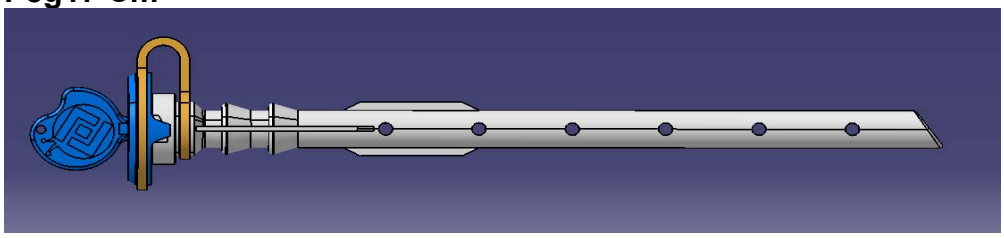
The SOSFIRST system is aiming to take care about the trees under attack to "healing" them, but the RPW must be eliminated from the field!

This goal can be achieved by using our ELECTRAP system. In fact, the integrated use of ELECTRAP and endotherapy increases the effectiveness of the treatments, reducing the costs and the environmental impact, both for users and consumers.

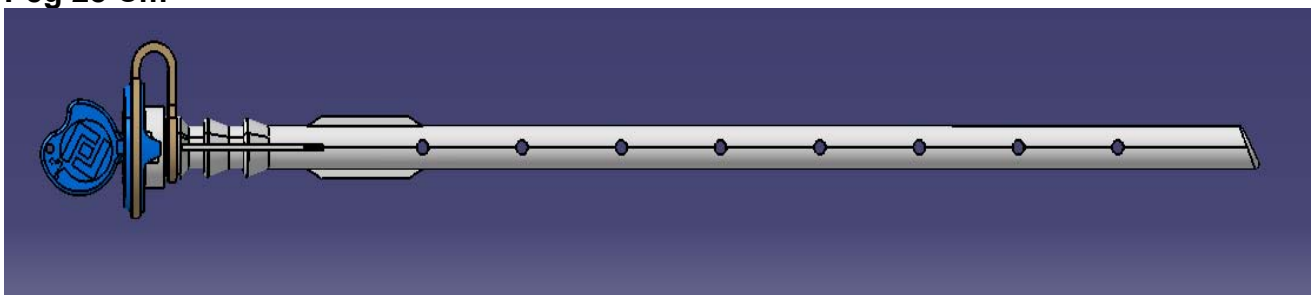
6. SOSFIRST DESCRIPTION

PEGS *DATA SHEET*

Peg17 Cm



Peg 28 Cm



Injection cannula for systemic products and nutrient supply of palm trees.

- SOSFIRST 28: Designed for palm trunk of large diameter as Washingtonia (*Ornamental*)
- SOSFIRST 17: Designed for palm trunk of lesser diameter as Phoenix Dactylifera (*Dates Production*)

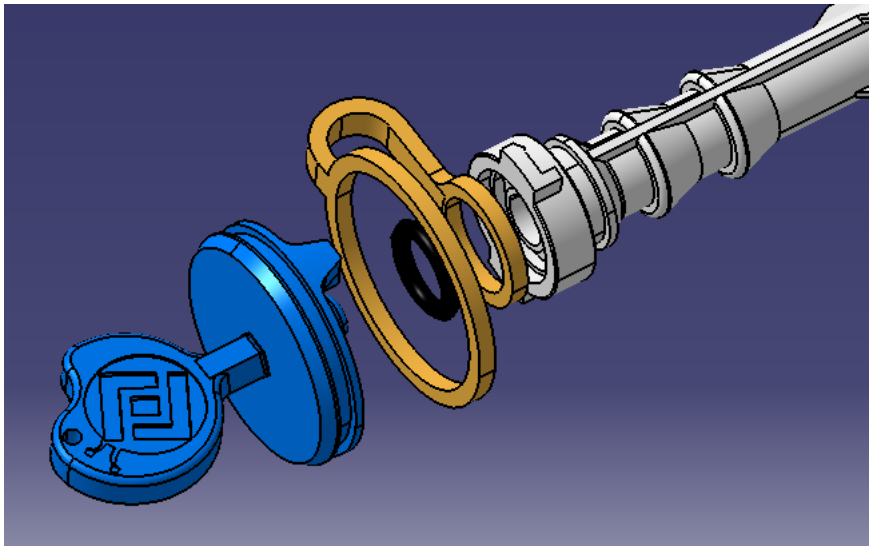
Both products come in bulk (50 units box).with instruction sheet

Please refer to tech drawing below for more detailed design/size references

Bill of material for SOS FIRST PEG 17cms and 28Cms

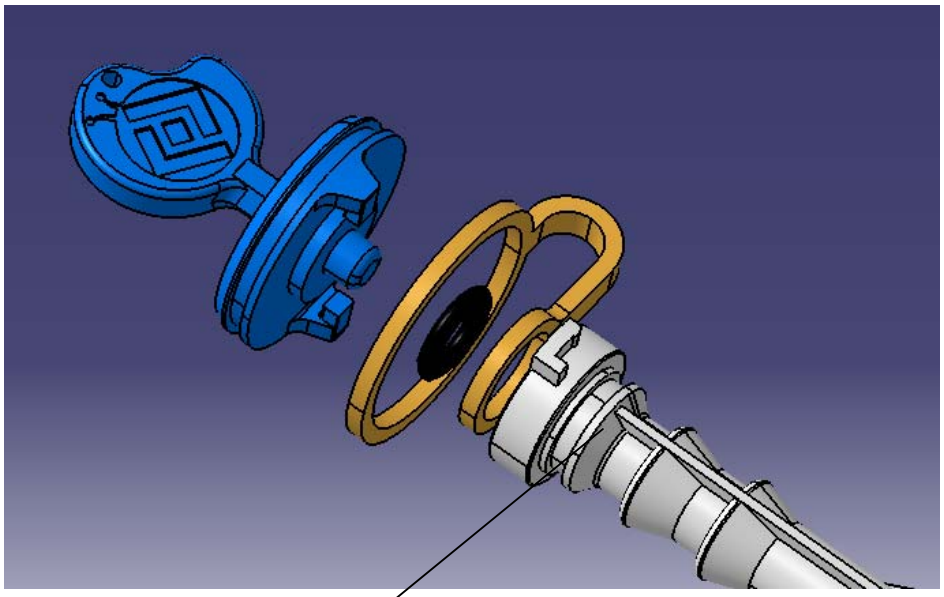
1) Key - 1 no:
2) Latch - 1 no:
3) Latch Holder - 1 no:
4) O-ring - 1 no:
5) Peg Body 17cm/28cm - 1 for each

(Key + Latch + peg body)



The product is designed in a very engineered way that it covers all aspect of:

- Easy implementation
- Easy maintenace
- Easy to open for medicine dripping
- Adequate number of holes provided on peg body for better medication, with holes distributed to reach all over the palm trunk
- 4 instead of 2 lateral ribs for a better grip
- Length/thickness designed according to the characteristics of different kinds of Palm Trees
- Flexibility adequate to cope with the progressive growth of the tree



Two ribs are added for better strength, also keeping a better grip with the putty

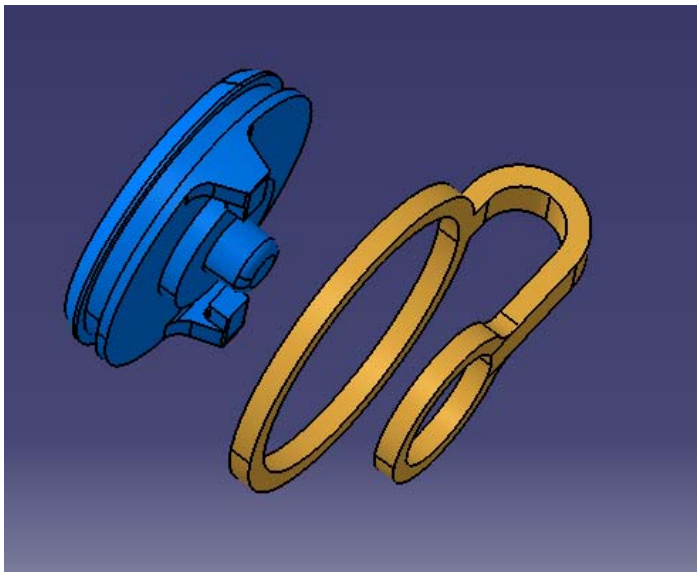
The material selected for this products is **Dupont Zytel 73G15L NC010** grade which is whether resistant, UV stabilized, having a very good impact strength, and excellent resistant to many chemical.

Mechanical properties	dry / cond	Unit	Test Standard
Tensile Modulus	6000 / 3500	MPa	ISO 527-1/-2
Stress at break	135 / 72	MPa	ISO 527-1/-2
Strain at break	4 / 10	%	ISO 527-1/-2
Flexural Modulus	5000 / -	MPa	ISO 178

Thermal properties	dry / cond	Unit	Test Standard
Melting temperature, 10°C/min	221 / *	°C	ISO 11357-1/-3
Temp. of deflection under load			
1.8 MPa	200 / *	°C	ISO 75-1/-2
0.45 MPa	220 / *	°C	

The product is designed with O-ring to seal the cap, so avoiding any contamination of and/or from the medicine.

Flexible Latch Holder



Material: Thermoplastic polyurethane (TPU) Shore Hardness A -90

The latch holder is designed for its flexibility and to hold the latch after opening. The common ordinary products are with inbuilt latch holder which gets break in usage. (See below image)

With regard to the above case, we have designed the latch holder in a way that it should not break in any point of usage. It have a soft flexibility so that the latch can rotate and lock. Even though in installation putty covers the latch holder, the other part of latch holder is flexible enough to lock the latch.
It is moreover easily replaceable in case of any heavy mishandling.

7. COMPARISON VS COMMON OTHER ORDINARY PRODUCTS

PA66 15% GF instead of standard nylon6

- Better ductility and tree growth adaptation (due to higher toughness)
- Whether resistance.
- Thermal resistance property is quite better than Nylon 6
- Chemical resistance property is quite better than Nylon 6
- Better long term heat resistance
- Better impact resistance in severe temperatures
- Better surface quality
- Better creep resistance
- Better UV-resistance achieved by adding UV additives
- Nylon 66 15% GF is a tough, abrasion-resistant material. has further improved surface smoothness, creep resistance, and process ability
- **The GF (Glass Fibre) component is adding physical resistance and strength**

Flexible Latch Holder

- Please have a look to the above note regarding this matter

Added advantage of our products

- We have our own scientific, technical, design and manufacturing team and our own moulds.

8. SOSFIRST WINNING POINTS

Factual Characteristics

- Better and more durable UV resistance
- Better long term heat resistance
- Better chemical resistance
- Easier insertion
- More adhesion to the tree fibres
- Less intrusion of the tree fibres
- Lesser breakability
    - of the main body
    - of the key
    - of the closing latch
    - of the latch holder
- More flexible (and replaceable) latch holder
- Lesser risk of unwanted in/out leakages
- Enhanced anti-vandalism protection due to key pentagonal shape

Factual Results

- Longer duration
- More safe and eco-friendly
- Better and more constant diffusion of the medication(s)
- Easier and faster maintenance and refilling
- Reduction of the cost of maintenance, refilling and supervision

9. SOSFIRST PUTTY

Putty with protective function and healing scares suffered by the plants throw grafting, pruning or accidental breakage.

Seal is mantained when using during the installation of SOSFIRST peg.

Presented in 1 kg tin.

COMPOSITION

Synthetic resin formulated with:

- 5-chloro-2-methyl-2H-isothiazole-3-one
- 2-methyl-2H-isothiazole-3-one

USE

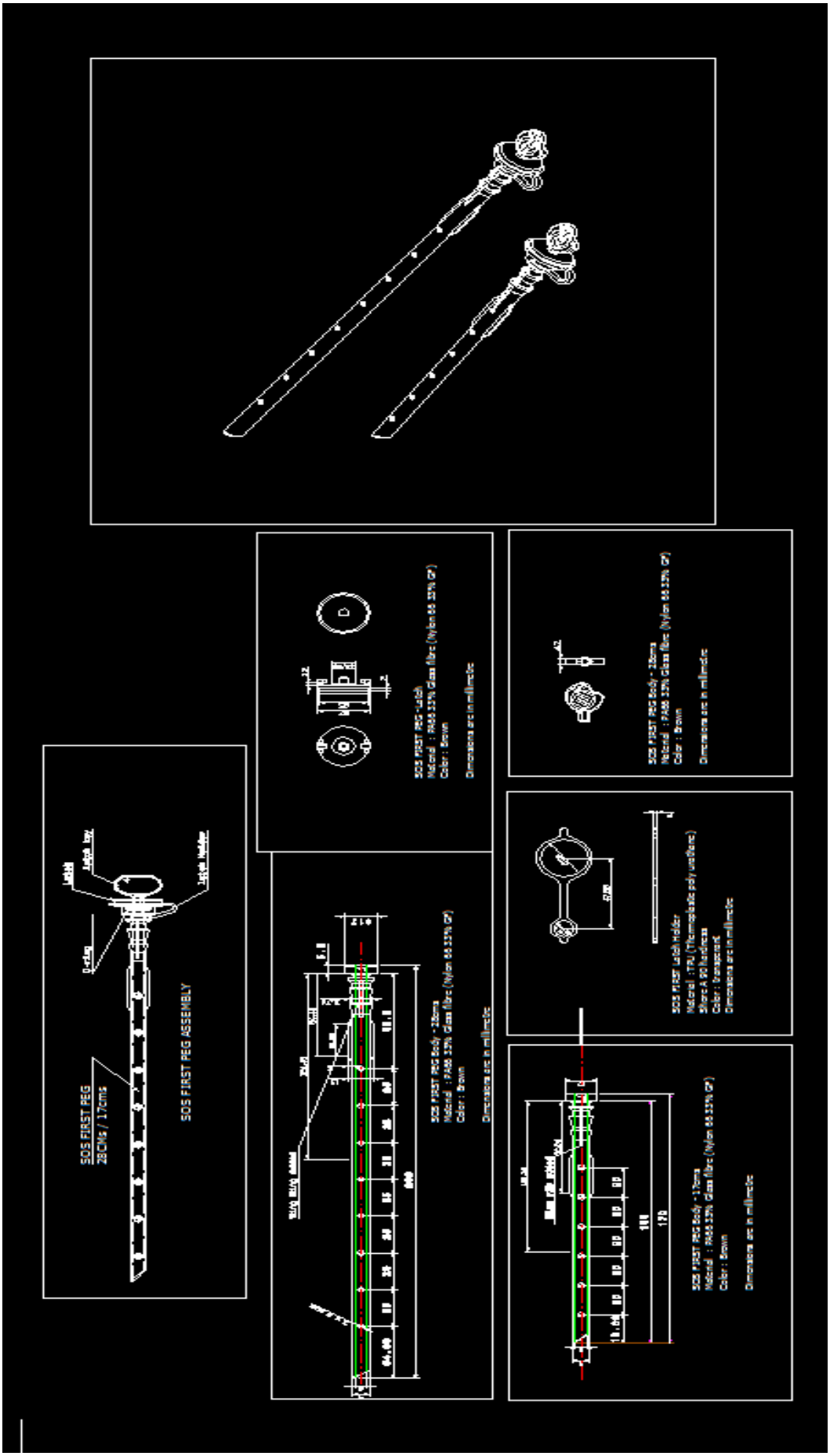
For its viscosity it is easy to apply with brush or extruder.

CHARACTERISTICS

- It is ideal for SOSFIRST pegs
- Our mastic is adapted to continuative trunk injection system installation and to every type of engagement for protecting plants on the occasion of pruning or wounds in general.
- The product contains no any phytotoxic principles for which can be spread directly on the wounds.
- It forms a plastic film that isolates the parts affected by the external environment.

The film, once dry, easily adapts to all movements of plants without slitting, maintaining stably unchanged its characteristics over time.

10. PRODUCT DRAWING



11. MORE IMAGES