

BIOLOGICAL / AGROECOLOGICAL PLANT HEALTH PROTECTION



1 - DEFINITION

Biological plant protection is the method of combating harmful insects (heteronychus, caterpillars) and diseases (mildew, pyriculariosis) by using natural mechanisms belonging to the animal kingdom or the plant kingdom or derived from them.

2 - THE DIFFERENT TYPES OF PESTS

SOIL-DWELLING INSECT PESTS



Grillon



Cylas formicanus



Gryllotharpa



Hétéronychus

AERIAL INSECT PESTS

Caterpillars



Butterfly



Grey worms



Cochineal / mealybug



Heteroptera



Rat / rodent



Wild boar



Hymenoptera



3 - TYPES OF DISEASES THAT DAMAGE CROP

Powdery mildew



Mildew



Sooty mold



Pyriculariosis



Virus



Altenaria



Rust



4 - THE DIFFERENT BIOLOGICAL/AGROECOLOGICAL CONTROL METHODS

4 - 1 - IMPROVED CULTIVATION TECHNIQUE

TETIANDROM-PAMOKARANA

LÉGUMES	S	O	N	D	J	F	M	A	M	J
Carotte										
Haricot										
Laitue à couper										
Mâche										
Pois										
Radis										
LÉGUMES POUR LA RENTRÉE	S	O	N	D	J	F	M	A	M	J
Concombre										
Courgette										
Mais sucré										
Pomme de terre										
Potiron										
Tomate										
PLANTES AROMATIQUES	S	O	N	D	J	F	M	A	M	J
Aneth										
Basilic										
Bourrache										
Céleri à couper										
Cerfeuil										
Giboulette										
Coriandre										
Melisse										
Persil										
Romarin										
SEMIS										
PLANTATIONS										
RÉCOLTES										

Indicateurs pour un climat moyen type île de France

Respect of crops calendar

Early tillage



Manure application at the right time

4



Weeding at the right moment



Crop rotation



Use improved seeds



Watering / Sprinkling



Use clean seeds and sowing equipment

Respecting these methods contributes to the improvement of the plants protection.

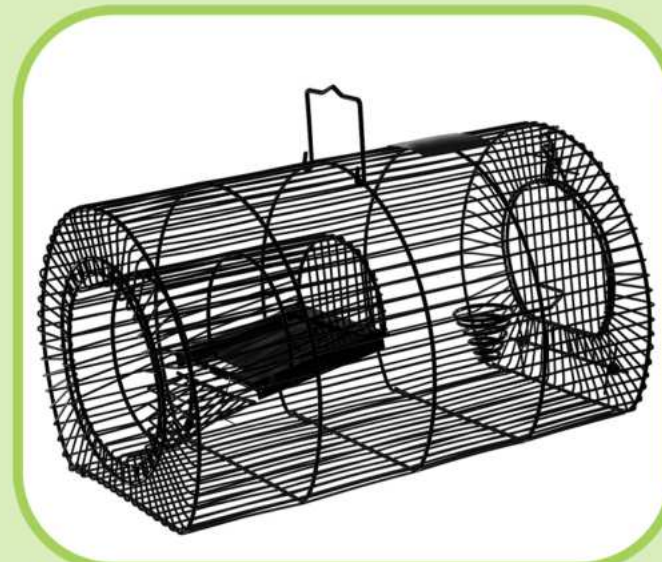
4 - 2 - MECHANICAL STRUGGLES



Weeding



Insect collection



Use of bait

4 - 3 - BIOLOGICAL / AGROECOLOGICAL CONTROL

4 - 3 - 1 / USE OF NATURAL PREDATORS



Variety of Hymenoptera that lays eggs inside harmful insect



Bird : kills aerial insect pests



Ladybug: Predator of aphids



Bat: hunts rats



Hedgehog: predator of insect pests and snails



Snake: rat repellent

4 - 3 - 2 / DIFFERENT PRACTICES AT FARM LEVEL

4 - 3 - 2 - 1 / CONTROL OF INSECT PESTS OF PLANTS/CROPS



Cochenials / scale
insects/ Mealy bugs



Aphids



Hymenoptera



Mosquitoes

ATTACKED PLANTS



Cucumber



Cabbage



Parsley



Tomato



Carrot



Courgette / zucchini



Cucurbits



Breds

METHOD OF CONTROL APPLIED AT THE FARMER LEVEL



Rice bran 1kg



Water 10litre



Boil



Filter and spray

FILTER AND SPRAY



PLANTS / CROPS AFFECTED



MAÎZE

AN EFFECTIVE METHOD OF CONTROL

MATERIALS / SUBSTRATES USED



RED CHILLI 2
TABLESPOONS



SOOT 1 SPOONFUL



WATER 1 LITRE

METHOD OF PREPARATION



Crush the chilli and soot mixture
Place the following mixture in / inside the corn cob
Can be used 2 times in a row / 2 successive times until the
corn is ripe.



Mouth masks are mandatory during preparation.

SOIL-DWELLING INSECTS

HETERONYCHUS



ATTACKED PLANTS / CROPS



RICE



MAIZE



BEANS



COWPEAS

METHOD 1 :

AN EFFECTIVE BIOLOGICAL / AGROECOLOGICAL PEST CONTROL APPLIED

SUBSTRATES USED



DWARF NEEM / FALSE
NEEM LEAVES 1KG



DRIED COW
DUNG 1KG

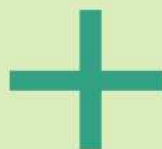


LEAF OF SIDA
RHOMBIFOLIA 1 KPK

METHOD OF PREPARATION AND USE



Neem leaves / False
neem leaves 1kg



Dried cow dung 1kg



Grinding



Water 10Liters



Sprinkling



Sieving



Storage

LEAF-EATING INSECTS

METHOD USED :

- Raw chilli 12 pieces
- Neem leaf 2kg
- Soap powder 2 teaspoons
 - Crush
 - Add 1 liter of water
 - Macerate 1 night
 - Fill up to 20 l of water + soap powder



METHOD USED 3 :

PAPAYA

- 1-Papaya leaf 1 kg
- 2-10l of water
 - Crush the papaya leafy
 - Add water
 - Macerate 3-15 days



4 - 3 - 2 - 2/ FIGHT AGAINST RATS / RODENT CONTROL



METHOD 1

Substrates used



Dried Bambara pea leaf



Avocado pit

PREPARATION METHOD

- Toast / Grill the kernel after grinding
- Grind the dried bambara pea leaves separately to obtain finer material

INSTRUCTIONS FOR USE

Put in places where rats frequently pass by



You need to be careful as this product is harmful to humans.

SECOND METHOD :

SUBSTRATES USED



Garlic
7 cloves



Water 1 liter



Pestle



Dried fishes

PREPARATION METHOD

Place the garlic cloves in 1 litre of water for 1 night and mix with the dried fish.
Use immediately

4 - 3 - 2 - 3 / FIGHT AGAINST DISEASES

FIGHTING MILDEW



CROP ATTACKED



VEGETABLES



TOMATO



POTATO

SUBSTRATES USED



DWARF NEEM
LEAVES / FALSE-
NEEM LEAF 1KG



BUDDLEIA
LEAF 3KG



COW URINE
2 LITERS



COMFREY 1 KG

WAYS TO CARE FOR IT

- Couper les feuilles en petits morceaux
- Piler et mélanger avec l'urine des boeuf
- Macerer pendant 10 jours dans 1 bidon coupé en deux et couvrir avec des sacs

FIGHT AGAINST PIRYULARIOSIS

FIRST METHOD

SUBSTRATES USED



SISAL



TEPHROSIA



COW DUNG 1 KG



WATER 10 LITRES

METHOD OF PREPARATION AND USE

- Cut the tephrosia and aloe leaves into very small pieces
- Put the dung and crushed leaves in the water
- Mix well
- Cover with a plastic bag
- Macerate for 15 days and mix every 2 days
- Put in a place out of direct sunlight
- Filter well before use and dilute with 4 litres of water.

SECOND METHOD



FEMALE SISAL 2 STEMS



WATER 15 LITRES

PREPARATION METHOD



Trimming of the sisal



Grinding



Adding water



Mixing/Blending

THIRD METHOD

SUBSTRATES USED



False-neem / Dwarf
Neem leaf



Sisal



Comfrey



Tithonia



BUDDLEIA LEAF



Psidia altissima

PREPARATION METHOD



Trimming



Grinding



Mixing



Storing



Putting in cool/
Dry place

FOURTH METHOD



Sooty mold

PREPARATION METHOD



Piling the dung



Add 10litres
of water



put in 1 can /
container



macerate for
15 days, mix
every 2 days

OTHER METHODS FIGHT AGAINST MILDEW

SUBSTRATES USED :



RICE BRAN: 1 BAG



MANURE 1 CART / WAGON

ATTACKED CROPS / PLANTS



COURGETTE / ZUCCHINI



TOMATO



POTATO



PASTEQUE / WATERMELON



CUCURBITACEAE

PREPARATION METHOD

- Mix rice bran and manure
- Ferment for 3 days
- Spray on crops for prevention

OTHER METHODS TO FIGHT MILDEW

SUBSTRATES USED



PREPARATION METHOD



Sweet rice bran
1 tin milk



Rice straw
ash 1 tin of milk



Warm water
5 litres



Put in 1 can
/ container

INSECT HARMFUL / PEST CONTROL

METHOD 2 : SUBSTRATES USED AND PREPARATION METHOD



SUE / SOOT 8 tablespoons



Water 10 litres



Red chilli 4 tablespoons



Spray



Filter



Macerate 1 night

CONTROL OF RICE BLAST DISEASE



CROPS / PLANTS ATTACKED

RICE



SUBSTRATES USED



SISAL

PREPARATION METHOD

The sisal is cut into small pieces and scattered in the rice fields before the crop bolts, before it starts to turn yellow



