Mating disruption

💰 5 🌳 🕐 5

🎯 **Codling moth**

⚠️ *Preventative effect - 3*
*The preventive effect
is repeated for each period*

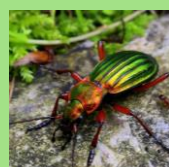| Tox	Res	Eco	Ben
0	0	0	0

🔄 Crop cycle : 🅿️ - 1 - 2

IPM works
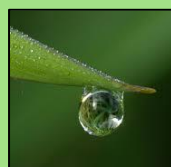
💰 3 🌳 🕐 2

Biocontrol insecticide
Bacillus thuringiensis

🎯 **Codling moth**

❌ *Maximum 2 treatments/year.*

🧰 *Curative effect* **- 4**
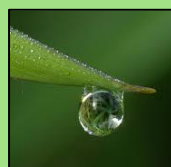
Tox	Res	Eco	Ben
0	0	+2	0

♻ **Crop cycle : 2 to 5**

3
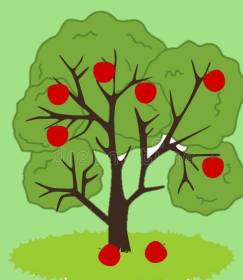
2

Granulovirus

🎯 **Codling moth**

Maximum 2 treatments/year.

Usable only

❌

⚠️ *Preventative effect - 2*

Tox	Res		Eco	Ben
0	0		0	0

🔄 **Crop cycle : 2 to 4**

IPM works
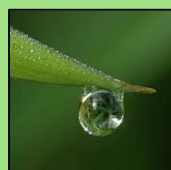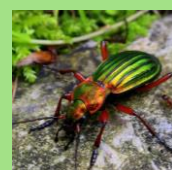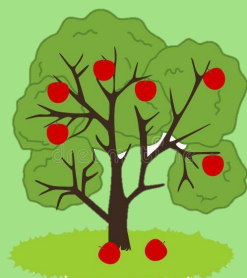
💰 3 🌳 🕐 2

Nematods

Steinernema carpocapsae

 🎯 **Codling moth**

Usable only

❌ 🌡️ ☁️

🌧️

⚠️ *Preventative effect - 3*

Tox	Res		Eco	Ben
☠️	💧		🌳	🪲
0	0		0	0

♻️ Crop cycle : 2 to 4

IPM works

1 🪙

🌳

🕐 **2**
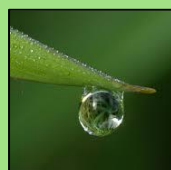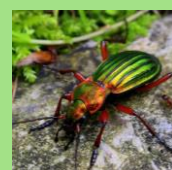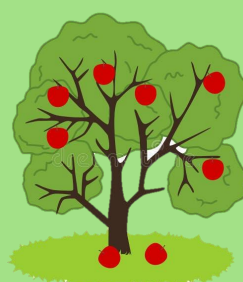
Sulphur

🎯 **Mites
Powdery mildew
Apple scab**

❌ *Usable except*
☀️🌡️

Cost and Time x2 when
💧🌧️

⚠️ *Preventative effect* - 2

🏥 *Curative effect* -1

Tox	Res		Eco	Ben
+1	0		+2	+2

♻️ Crop cycle : 1 to 5

IPM works

🪙 3   🌳   🕐 2
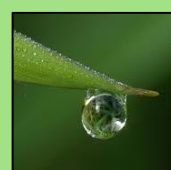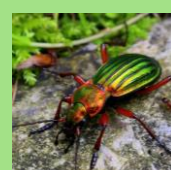
Microorganisms

B.amyloliquefaciens
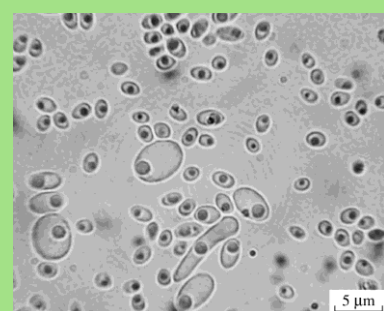
🎯 **Storage diseases**

❌   **Usable only**

⚠️ *Preventative effect* - 2

Tox	Res	Eco	Ben
0	0	0	0

♻️ **Crop cycle : 3 - 4**

IPM works

💰 3   🕐 2
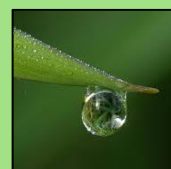
Microorganisms

B.bassiana

⊕ **Mites**

❌   **Usable only**

🏥 **Curative effect**   - 2

Tox	Res		Eco	Ben
0	0		0	0

♻ **Crop cycle : 2 to 5**

IPM works
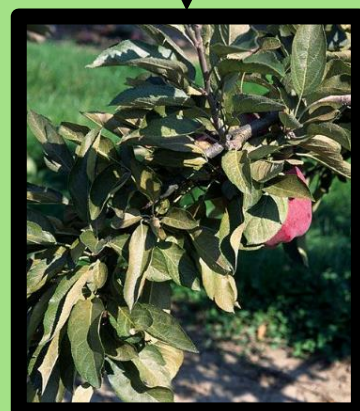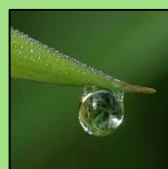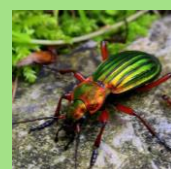
🪙 **3** 🌳 🕐 **2**

Potassium hydrogen carbonate
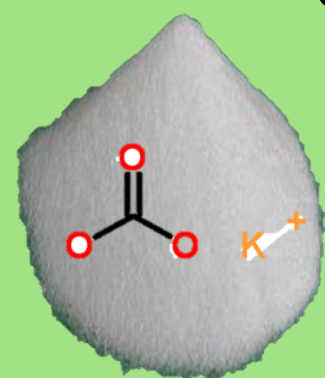
🎯 **Apple scab**
Powdery mildew

Usable except

❌ ☀️🧪⁺

⚠️ **Preventative effect** **- 2**

🏥 **Curative effect** **-1**

Only in association with sulphur

Tox	Res		Eco	Ben
☣️	💧		🌳	🪲
0	0		0	0

♻️ **Crop cycle : 1 to 5**

IPM works
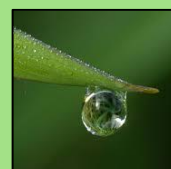
Essential oil

Sweet orange

3

🕐 2

🎯 **Powdery mildew Mites**

Usable only

❌
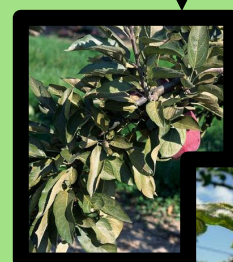
🏥 **Curative effect** -3
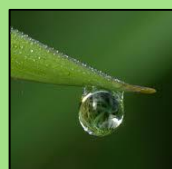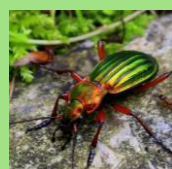
Tox	Res		Eco	Ben
+2	0		+2	+2

♻ Crop cycle : 1 to 4

1 🪙 🌳 🕐 **2**

Paraffin oil

🎯 *Mites*

.

⚠️ *Preventative effect*
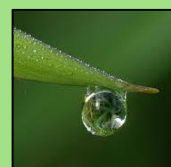
Prevents primary installation

Tox	Res		Eco	Ben
+2	0		0	0

♻️ **Crop cycle :** P

IPM works

Rape oil

2 🪙 🌳 **2** 🕐

🎯 **Mites**

.

⚠️ **Preventative effect**

Prevents primary installation

Tox	Res	Eco	Ben
0	0	0	0

♻️ **Crop cycle :** 🅿️

IPM works
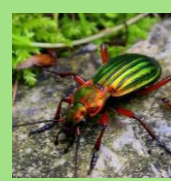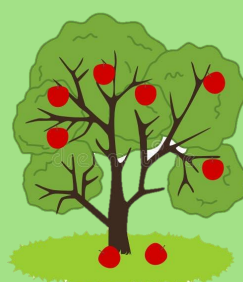
💰 3　　🌳　　🕐 2

Vegetal oils

Clove, Geranium, Thyme

🎯 **Storage diseases**

❌　**Usable only**

💊 *Curative effect*　　**-2**

Tox	Res		Eco	Ben
+2	**0**		**+1**	**+1**

♻ Crop cycle : *4 - 5*

IPM works
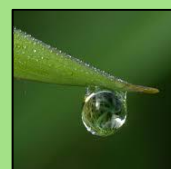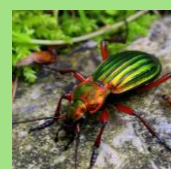
3 🪙

2 🕐

Elicitors
Defense stimulators

Powdery mildew
Apple scab
Storage disease

Usable only

❌

⚠️ **Preventative effect -2**

Tox	Res	Eco	Ben
0	0	0	0

🔄 **Crop cycle : 1 to 4**

IPM works
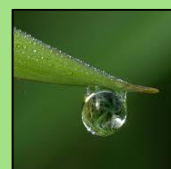
💰 1 🌳 🕐 2

Basic substances

Saccharose - Fructose

🎯 **Codling moth**

⚠️ **Preventative effect** **-1**

Tox	Res	Eco	Ben
0	0	0	0

♻️ **Crop cycle : 1 to 3**

IPM works

💰 1
Per pest

🕐 2
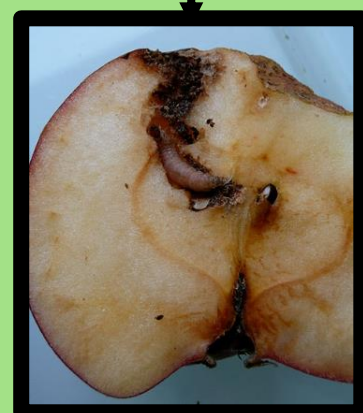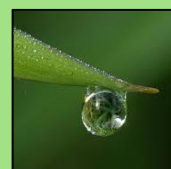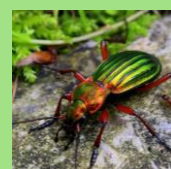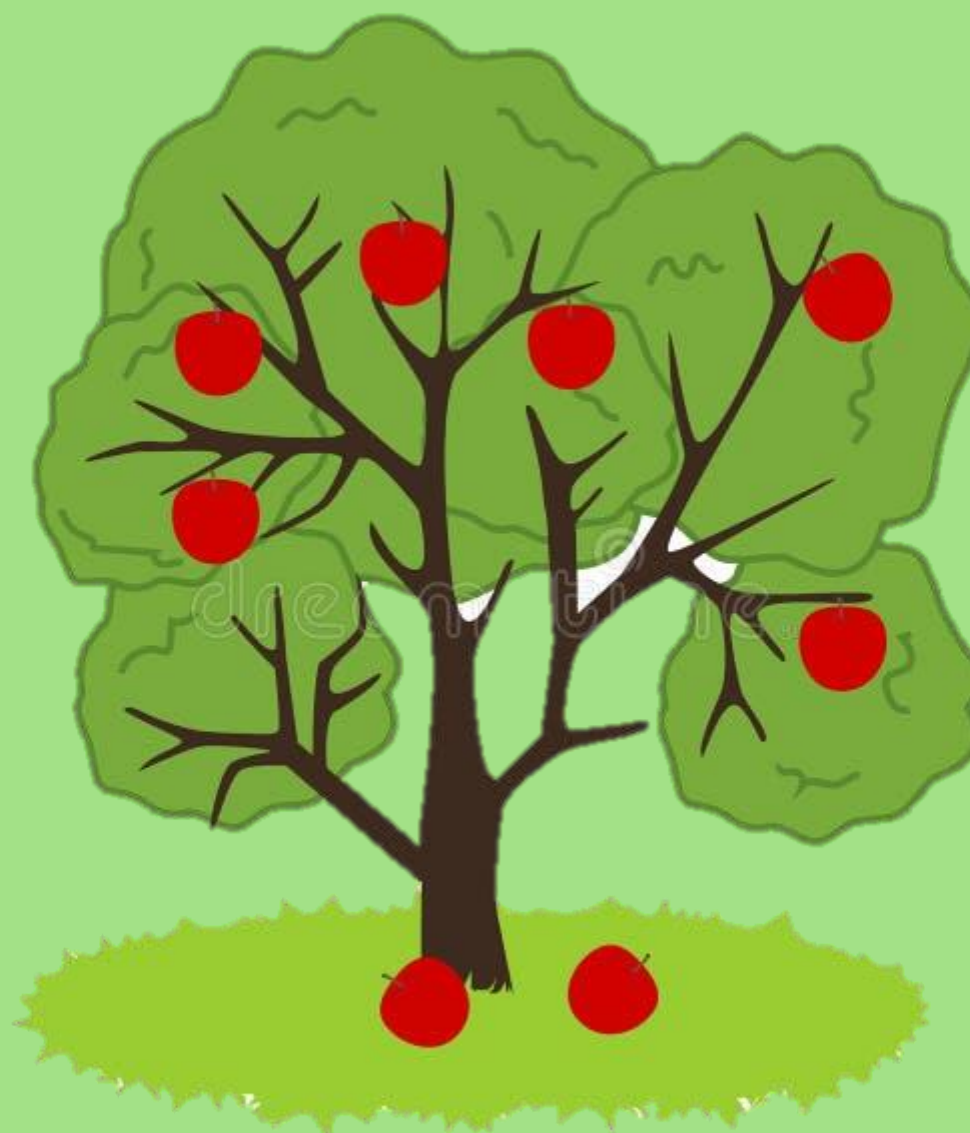
Basic substances

Equisetum - Salix

🎯 **Powdery mildew**
Apple scab

⚠️ **Preventative effect**   **-1**
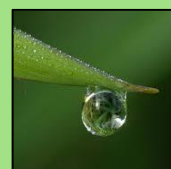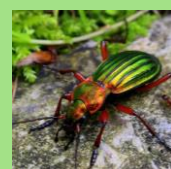
Tox	Res	Eco	Ben
0	0	0	0
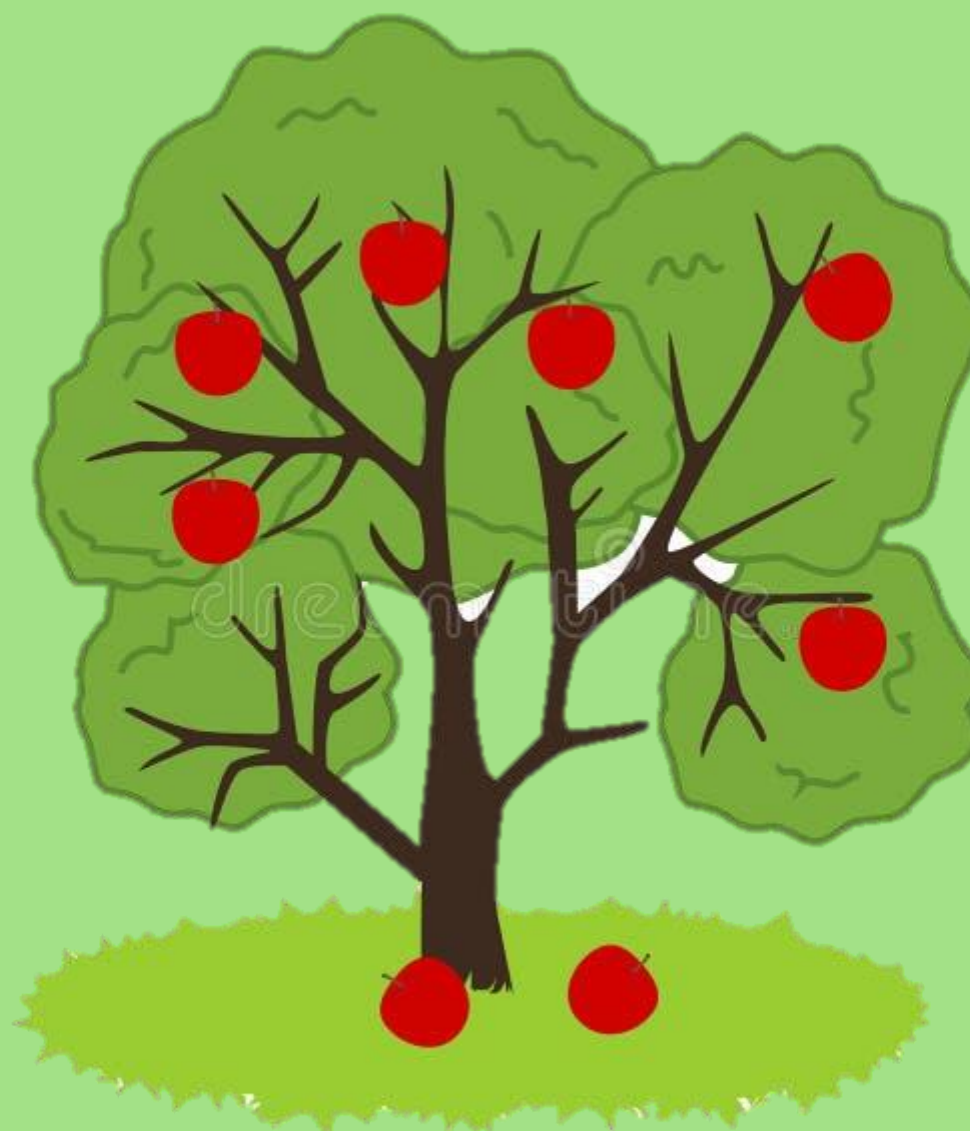
🔄 **Crop cycle : 2 to 4**

1 Per pest
2

Basic substances

Urtica - Talc
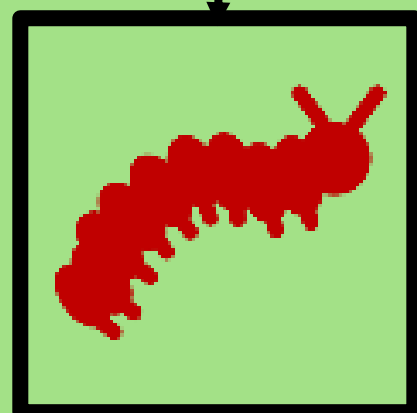
Codling moth
3 – 4
Aphids
2 – 4
Mites
2 – 4

⚠ **Preventative effect** **-1**

Tox	Res	Eco	Ben
0	0	0	0

🔄 **Crop cycle : 2 to 4 >** **depending on pest**

IPM works

Copper

💰 1 ⊗   🕐 2 ⊗
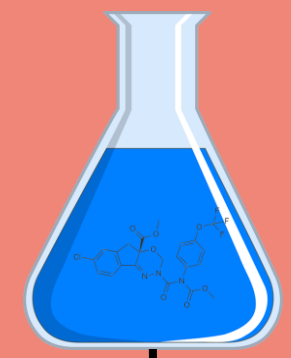
◎ **Apple scab**

⊗ *Cost and Time x2 when*

x2 in periods 4 & 5

⚠ *Preventative effect* **- 2**

🧰 *Curative effect* **-1**

Tox	Res		Eco	Ben
+2	+ 2 ⊗		+ 3	+2

🔄 Crop cycle : 1 to 5
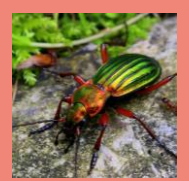
Storage diseases fungicide

💰 2   🌳   🕐 2
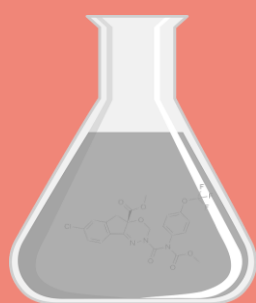
🎯 Storage diseases
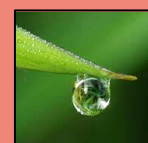
x2 in period 5

! Preventative effect   - 1

➕ Curative effect   - 4

Tox	Res	Eco	Ben
+ 2	+ 3 ⊗	+ 2	+ 2

♻ Crop cycle : 4 - 5

IPM works
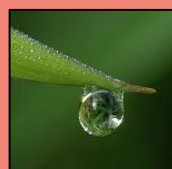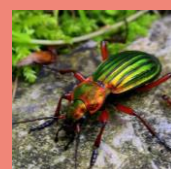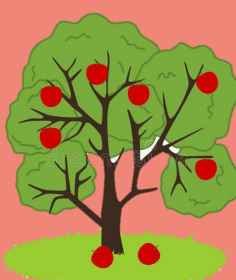
Airborne diseases fungicide

2 (+1*) 2

🎯 Apple scab
Powdery mildew

*for two pathogens
Maximum 2 treatments/year
x2 in periods 4 and 5

⚠ Preventative effect - 1

🧰 Curative effect - 4

Tox	Res	Eco	Ben
+ 2	+ 2 ⊗	+ 2	+ 2

♻ Crop cycle : 1 to 5

IPM works

2 🕐 **2**
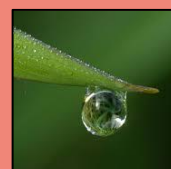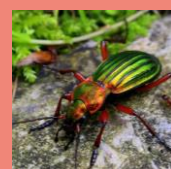
Acaricids
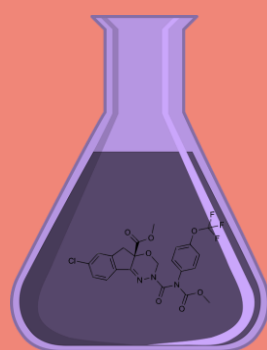
🎯 *Mites*

Maximum 2 treatments/year

⊗

Curative effect **- 4**

Tox	Res	Eco	Ben
+4	0	+ 4	+ 4

🔄 Crop cycle : 2 to 5

IPM works
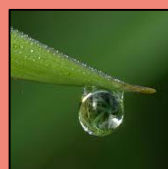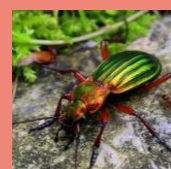
Growth regulator insecticide (Tebufenozide)

💰 2   🌳   🕐 2
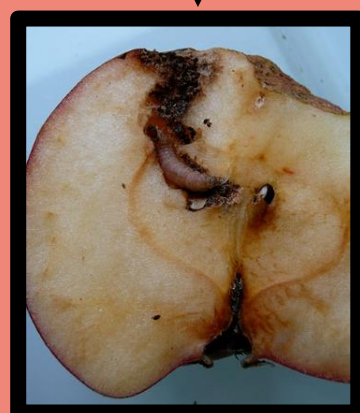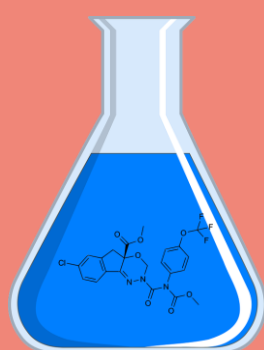
🎯 Codling moth

Maximum 2 treatments/year

⚠️ *Preventative effect* - 3

🧰 *Curative effect* - 1

Tox	Res	Eco	Ben
0	0	+ 2	+1

♻️ Crop cycle : 2 to 5

IPM works
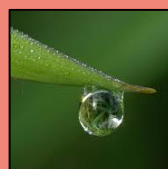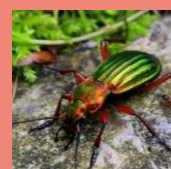
Aphicides (flonicamid - spirotetramat)

💰 2 🌳 🕐 2
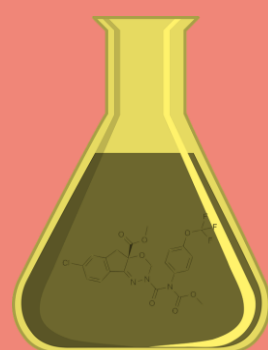
🎯 Aphids

⬜✕ **Maximum 2 treatments/year**

🩹 *Curative effect* - 3

Tox	Res		Eco	Ben
+2	0		+ 2	+ 3

♻ Crop cycle : 1 to 5

IPM works
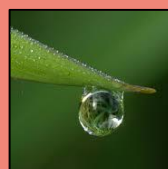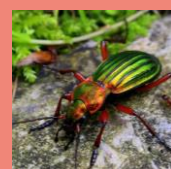
1 ⊗   **2** ⊗

Polyvalent insecticide

Pyrethroids

🎯 **Aphids**
Codling moth

⊗
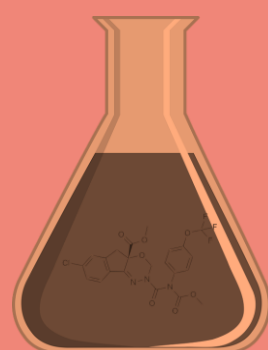
Maximum 2 treatments/year
Cost and Time x2 when

🏥 **Curative effect**   **- 4**

Tox	Res	Eco	Ben
+4	0	+ 4	+ 4

♻ **Crop cycle : 2 to 5**

IPM works
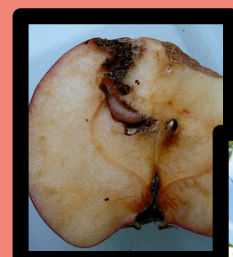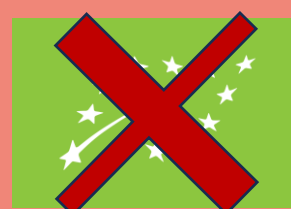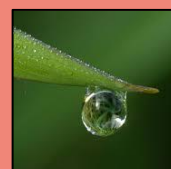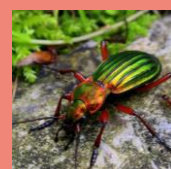
💰 3 🕐 3

Ecological management

MANAGEMENT

🎯 Aphids
Codling moth
Mites
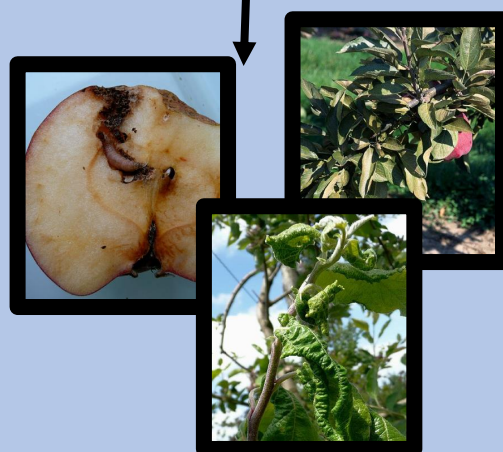
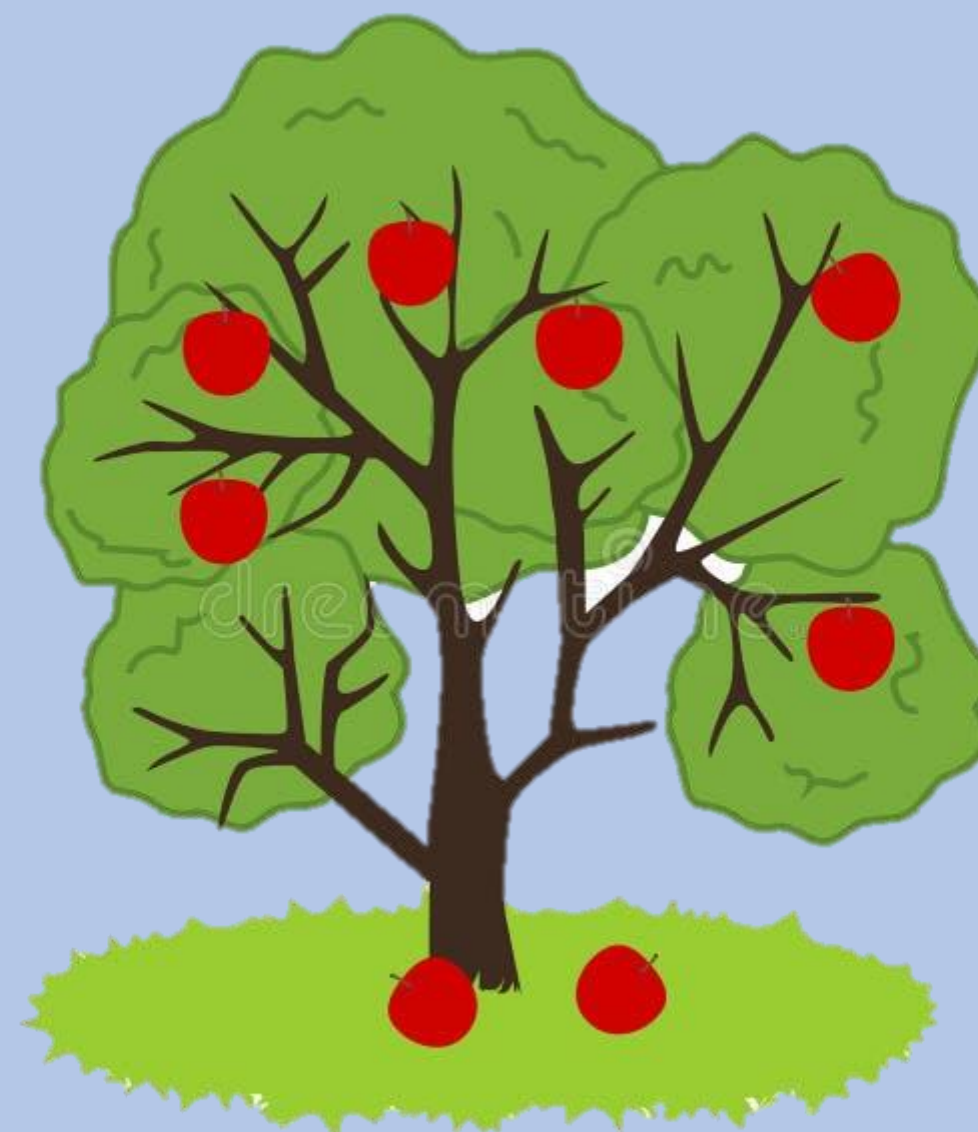⚠️ *Preventative effect* - 2

🏥 *Curative effect* - 1

Tox	Res		Eco	Ben
0	0		-1	-2

🔄 Crop cycle : P - 1 - 2

IPM works
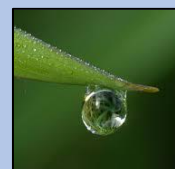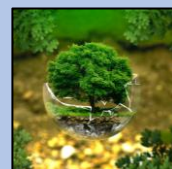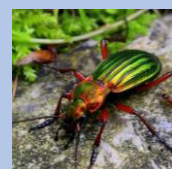
+1 *For each pest*

+1

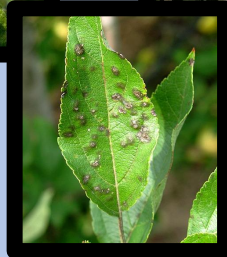# *Spraying Decision Support System*

Aphids
⊕ Apple scab
Mites

⊗

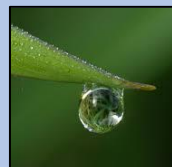*Play with pesticide or biocontrol product with cumulative effects.*

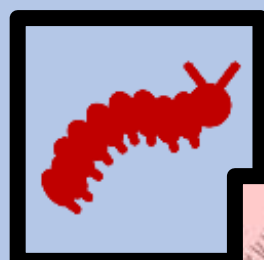| Tox	Res		Eco	Ben
-1	-1		-1	-1

Crop cycle : 1 to 5

IPM works
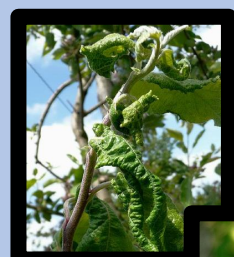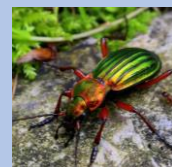
💰 +2 🌳 🕐 +1

Low drift sprayer

⌖ *All*

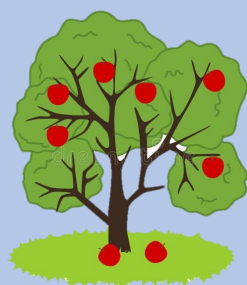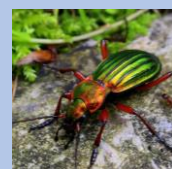❌ *Play with pesticide or biocontrol product with cumulative effects.*

Tox	Res		Eco	Ben
-1	-1		-1	-1

♻ Crop cycle : 1 to 5

IPM works
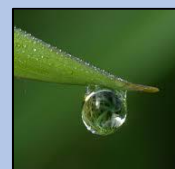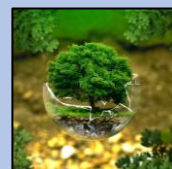
💰 3   🌳   🕔 5

Green pruning

⊙ **Apple scab**
Powdery mildew
Storage disease

⊗ *Maximum 2 reductions or pruning / year*
Not 2 periods in a row

❗ **Preventative effect** **-2**

➕ **Curative effect** **-1**

Tox	Res		Eco	Ben
0	0		0	0

♲ **Crop cycle : 3 to 5**

IPM works

2

4
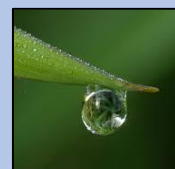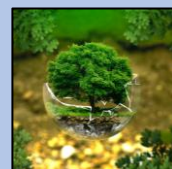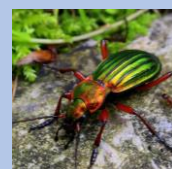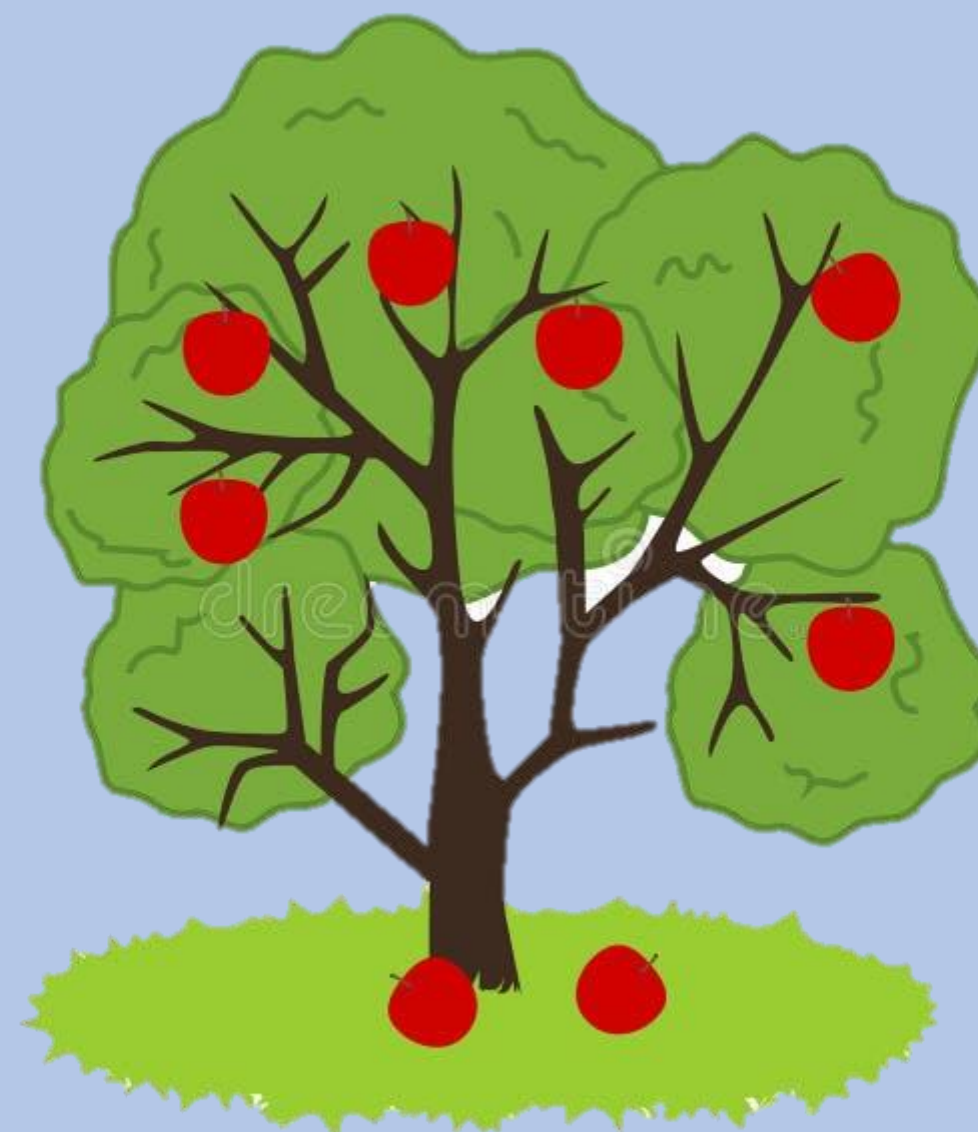
Reducing vigour of the tree

Aphids
Mites
Powdery mildew
Storage disease

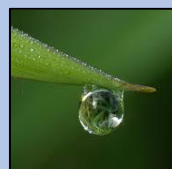*Maximum 2 reductions or pruning / year*
Not 2 periods in a row

Preventative effect **-2**
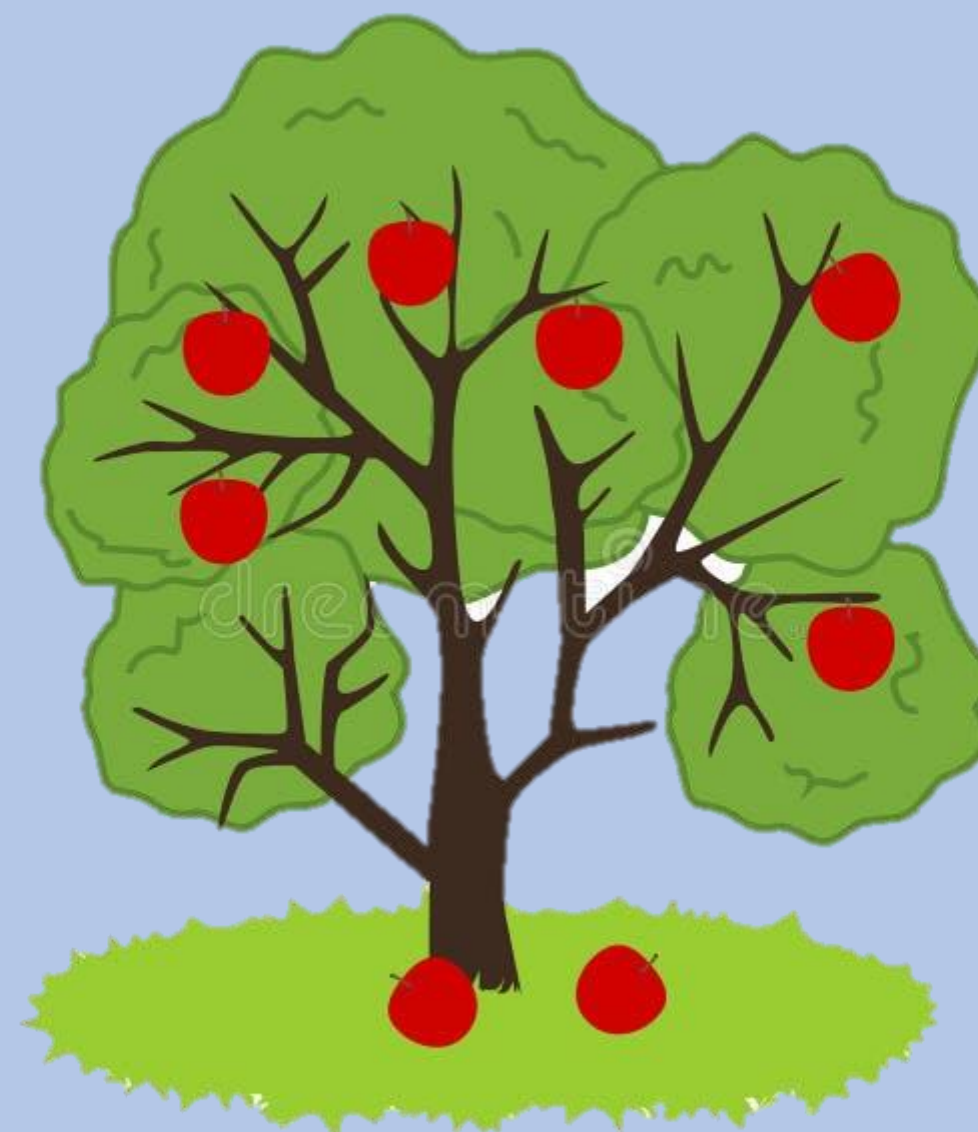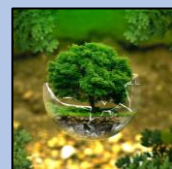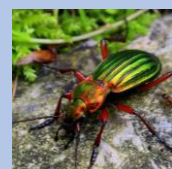
Tox	Res	Eco	Ben
0	0	0	0

Crop cycle : 1 to 4

IPM works
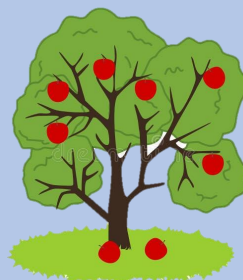
Rock powder

Kaolinite
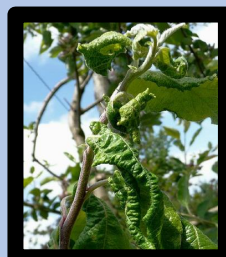
🎯 **Aphids**

⚠️ *Preventative effect* **-2**

💰 1   🕐 2
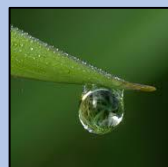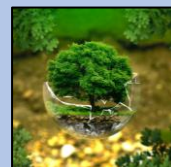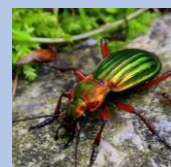
Tox	Res	Eco	Ben
+1	0	0	0

🔄 Periods : 3 & 4

2 🪙 🌳 🕐 **1**

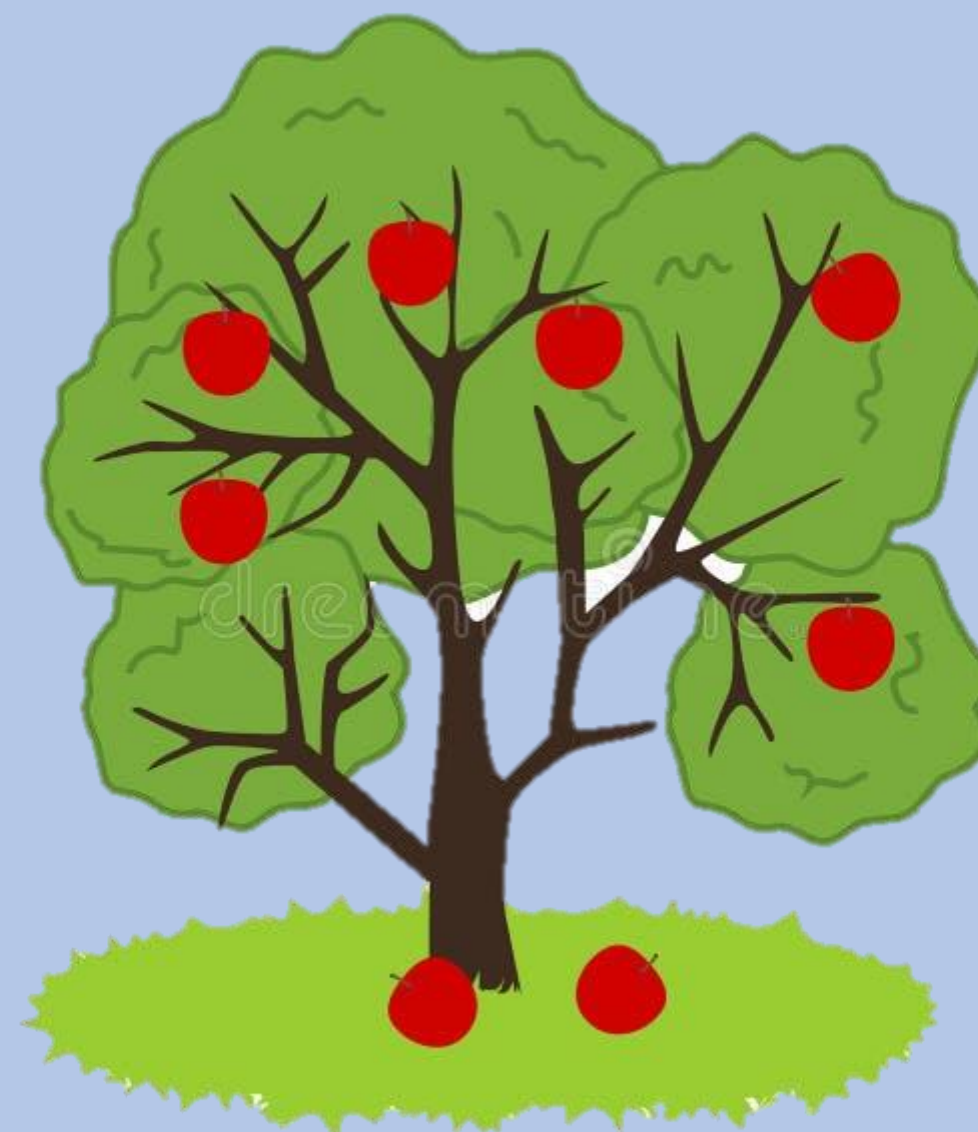# *Decision Support System (DSS)*

🔧🧠

⬇️

🎯 **Aphids
Apple scab
Mites**

❗

*Give the possibility to play
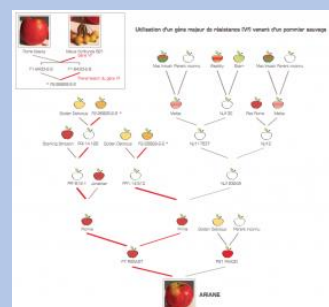"Preventive measures"
next turn after drawing
a weather card*

🔄 **Crop cycle : 1 to 4**

5 🪙

🕐 **0**

Resistant variety

◎ **Apple scab**

⚠️ *Preventative effect*
- At each period – 3
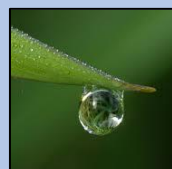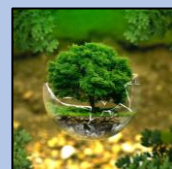*- You have to combine with other solutions twice during the season to keep the efficacy*
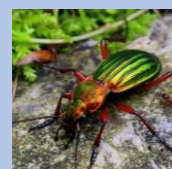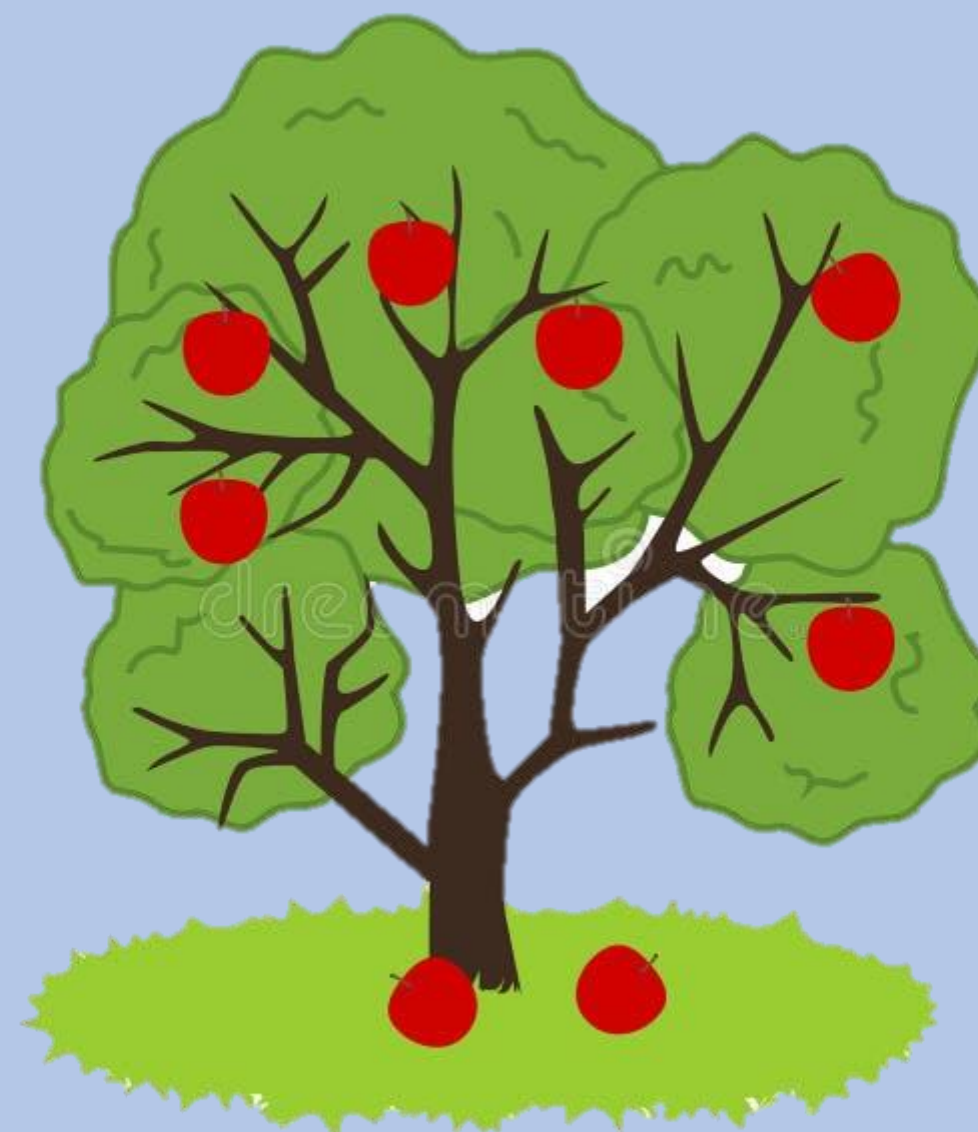*> if not - 2*

Tox	Res	Eco	Ben
0	0	0	0

♻️ **Crop cycle :** P↱

IPM works

3 🪙 🌳 🕐 **4**
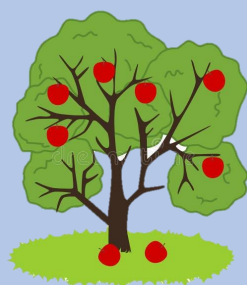
6 *with nets*

Anti-rain cover

🎯 **Apple scab**

⊗ *Mites* **+1**
At each period

❗ *Preventative effect* **-2**
At each period

Tox	Res	Eco	Ben
0	0	0	0

🔄 **Crop cycle :** P

2 🌳 🕐 **3**

Leaf pick-up

🎯 **Apple scab**

⚠️ *Preventative effect*

Prevents primary installation

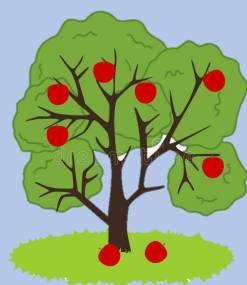| Tox	Res	Eco	Ben
0	0	0	0

Crop cycle : P

IPM works
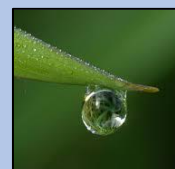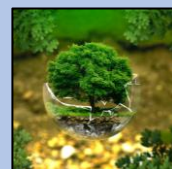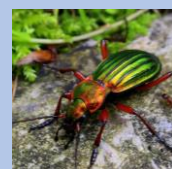
4

6 *with AR cover*

Nets

⊕ **Codling moth**

❗ *Preventative effect*
At each period - 2
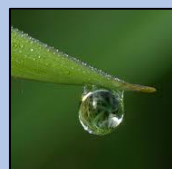
Tox	Res	Eco	Ben
0	0	0	+1
			At each period

Crop cycle : [P] 1
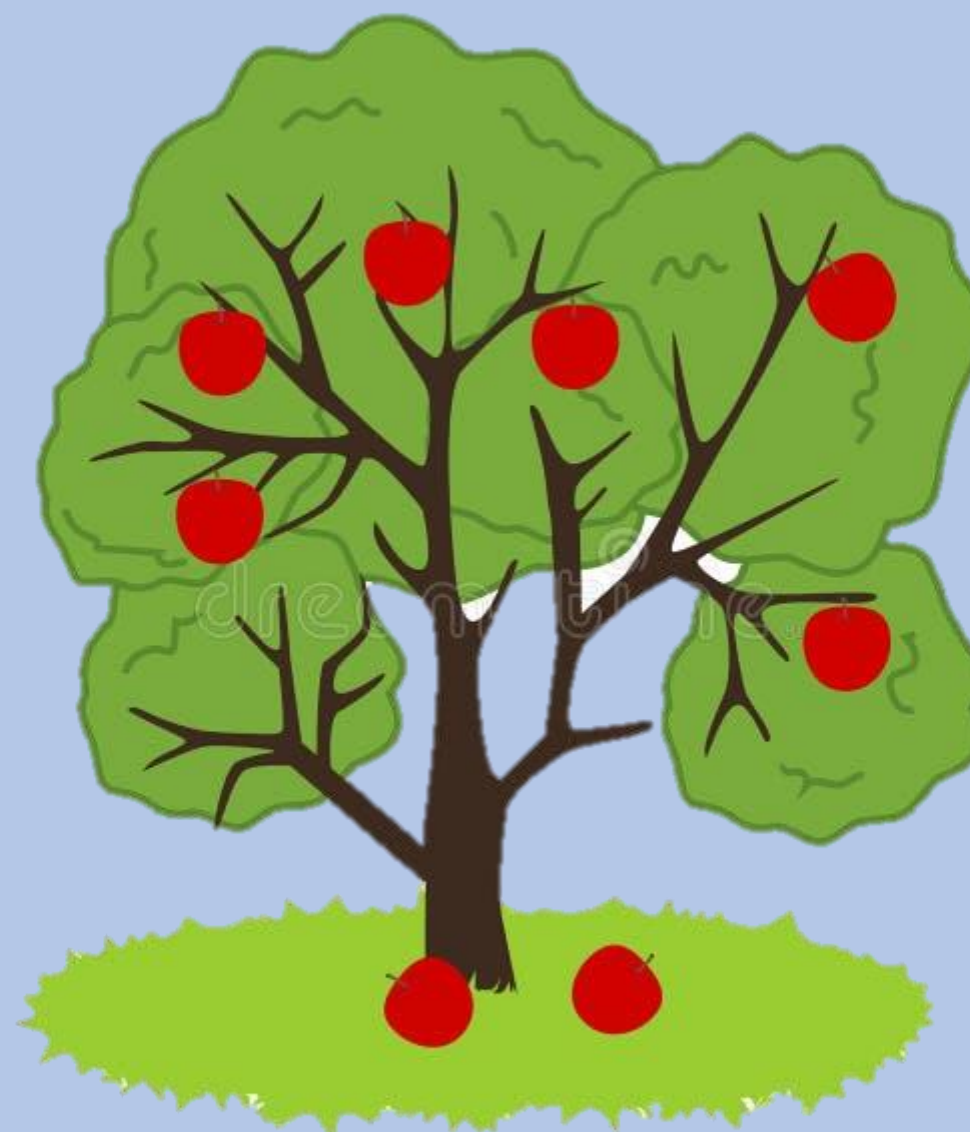
💰 3   🌳   🕐 2

Eco-Grazing

🎯 **Codling moth**

⚠️ *Preventative effect -2*

➕ *Curative effect   -1*
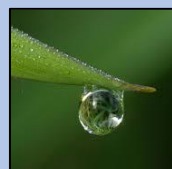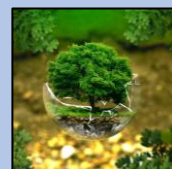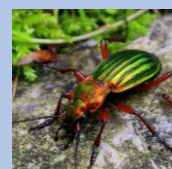
Tox	Res		Eco	Ben
0	0		0	0
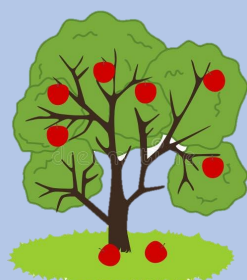
♻️ Crop cycle : 1 to 3

1 💰 🌳 🕐 **2**

Corrugated cardboard strips

🎯 **Codling moth**

⚠️ *Preventative effect*

Prevents primary installation

Tox	Res		Eco	Ben
0	0		0	0

🔄 **Crop cycle :** P

IPM works

💰 3   🌳   🕐 3

AEI > birds & chiropterans

🎯 **Codling moth**

⚠️ *Preventative effect -2*

Tox	Res		Eco	Ben
☠️	💧			
0	0		-1	-1

🔄 **Crop cycle :** P

Adjuvant

💰 +1   🌳   🕐 0

🎯 All

Play with biocontrol product to be applicable by dry weather

Crop cycle : 1 to 5
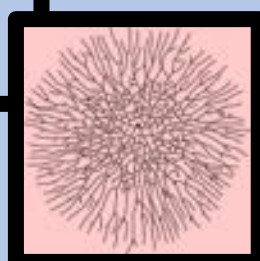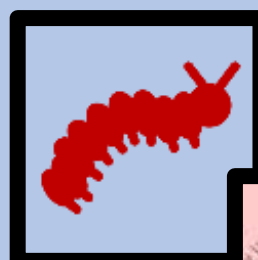
IPM works

+2

0

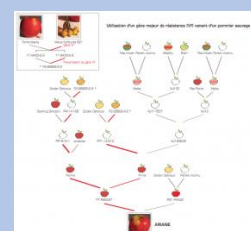# *Biostimulant*

⊕ **All**

❗ *Preventative effect*

Alone if risk ≤1 and pressure is in the light yellow zone

-1

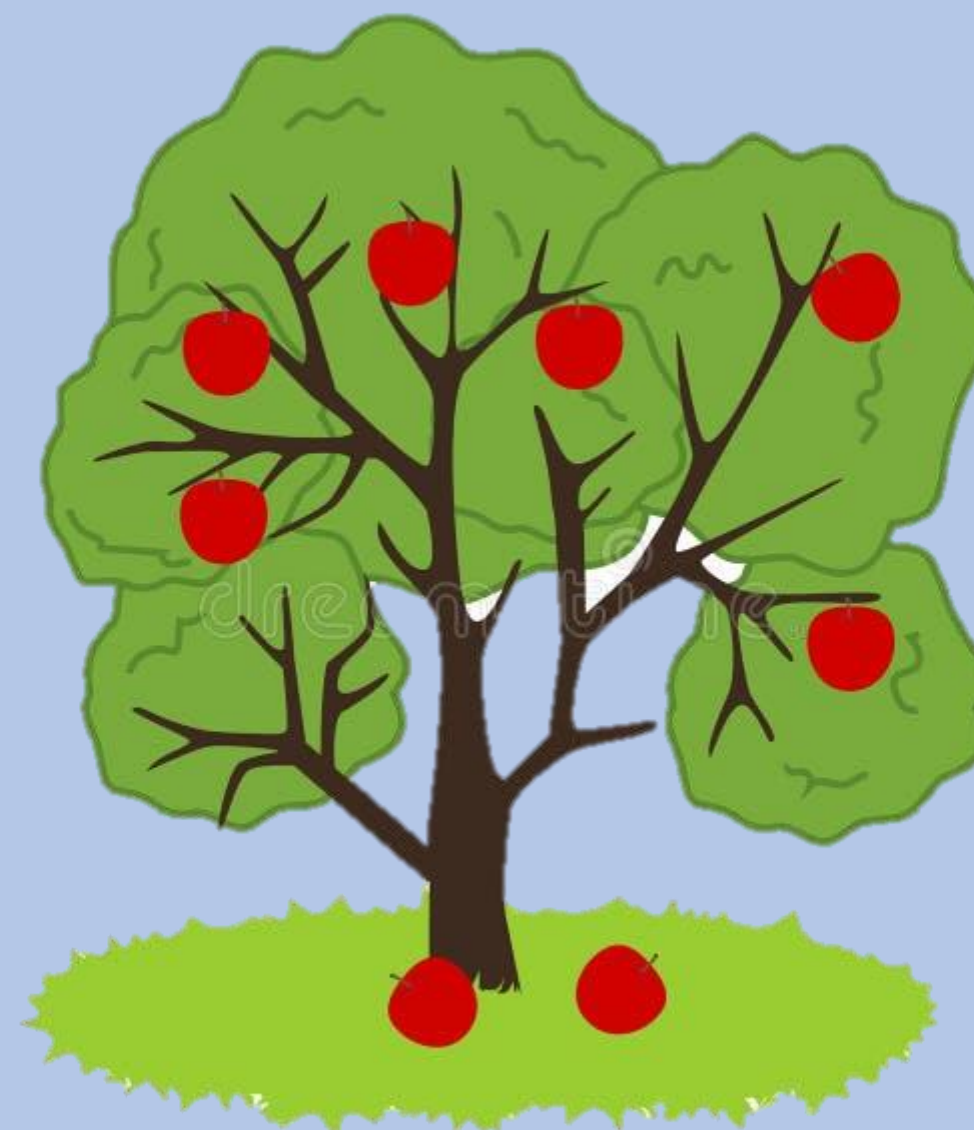*Can increase the efficiency of microorganisms or natural substances*

-1

maintains the durability of the variety resistance over time

1 solution

♺ Crop cycle : 1 to 4

IPM works

💰 2 🌳 🕐 1

Augmentorium

🎯 **Codling moth**

⚠️ *Preventative effect* - 1
for 2 periods

Tox	Res	Eco	Ben
0	0	0	-1

🔄 Crop cycle : 🅿️ 1 to 4

IPM works

2

FWF
(Farm Work Firm)

🕐 **+1**
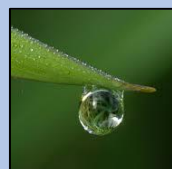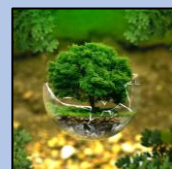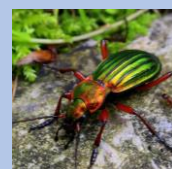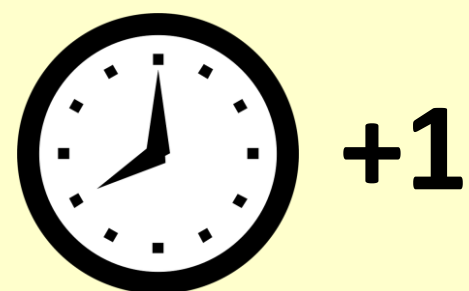
The additional unit of time must be spent during the period

♻ **Crop cycle :** 🅿 **1 to 5**

💰 0 🍎🌳

Associated treatments

🕐 **+1**
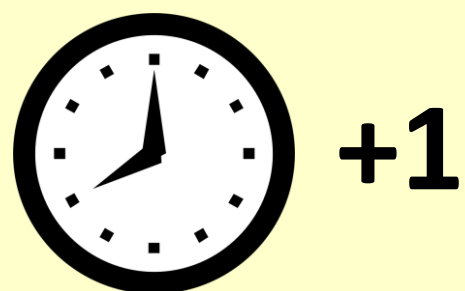
You win 1 time unit when you spray with 2 biocontrol

♻ **Crop cycle : 1 to 5**

💰 0

Biocontrol product + ½ dose of copper

Cu

🎯 **Apple scab**

⚠️ *Preventative effect*

+1 **Copper efficacy is low**

🕐 **+1** *You win 1 time unit when you spray this associations*
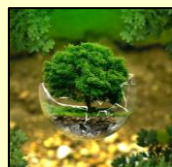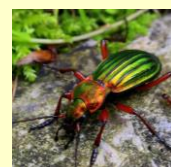
And you reduce impact of copper

Tox	Res		Eco	Ben
-1	-1		-1	-1

♻️ **Periods : 1 to 5**

IPM works