



IWMPRAISE IWM Game



Rules of the game « IWM in Perennial crops »

I. Object

The game is based on the **evolution of weeds** according to climatic and agronomic factors by following the cycle of crops and rotations. The actors are farmers or advisers who must take decisions based on this evolution. They will be split into **two or more teams**.

The objective of the game is both to ensure a sufficient **quality and quantity** of the production, while maintaining a low level of toxicological and ecotoxicological indicators and **while minimizing the harmfulness of weeds**.

II. Components

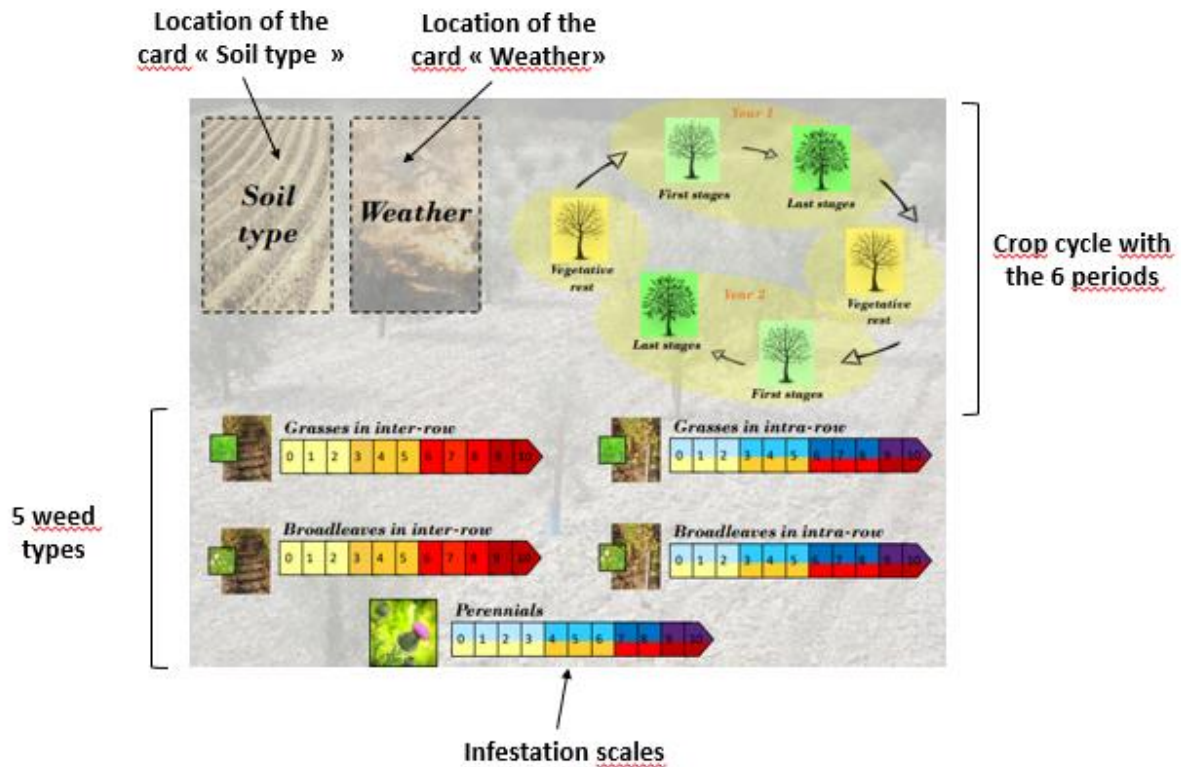
1) Do it yourself

The game material, available on the website, is to be printed and prepared. It contains :

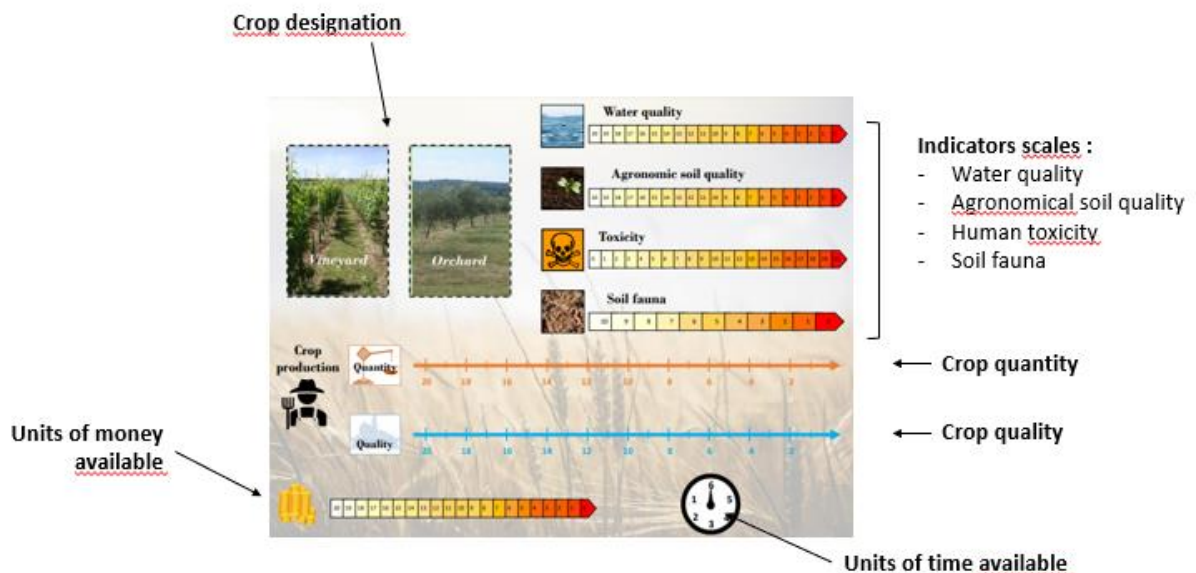
- 1 common board
- 1 player board, one per player - team
- "Soil type" cards = 3
- "Weather" cards = 6 (2 per type of weather)
- "Measure" Cards = 32 per player - team
- 1 "Game turn" summary to visualize the phases of each period

2) Game boards

This game contains a first common board on which crop cycle and 5 categories of problematic weeds are represented. Locations are also provided to indicate the type of soil present on the farm (one type for the entire game) as well as the weather (one card per game turn).



Each team has its own player board « indicator dashboard »:

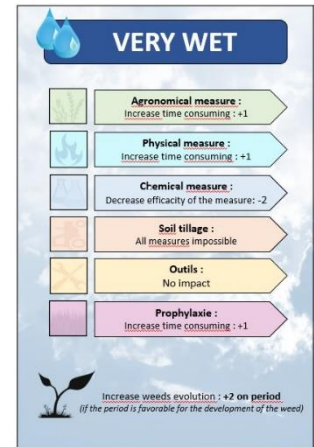


3) Cards

a) « Weather » cards

With three different climatic conditions (“dry”, “wet” and “very wet”), they are drawn at the start of each new period. They can impact:

- 1) Control measures: increase in time, increase in cost, decrease or increase in efficiency, inability to perform, etc.
- 2) Weeds infestation pressure : Increase in pressure up to +2 (if the period is favorable [evolution ≠ 0] for the development of the weed).



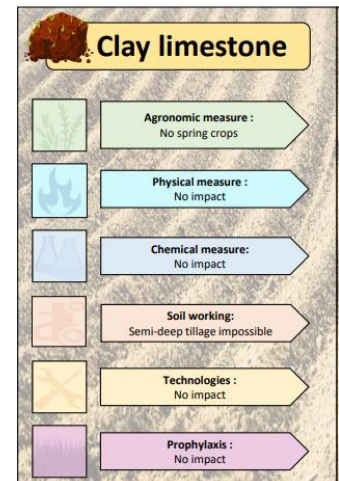
b) « Soil type » cards

c)

The "Soil types" cards, three in number, represent the type of soil present in the chosen farm :

- 1) Balanced soil
- 2) Clay-limestone soil
- 3) Soil subject to erosion

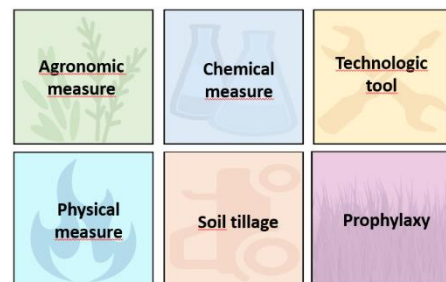
This card must be chosen (or drawn at random) by all players at the start of the game for the entire game. The type of soil will impact the management of weeds on the farm: obligation or impossibility of carrying out methods, impact on agronomic indicators, etc.

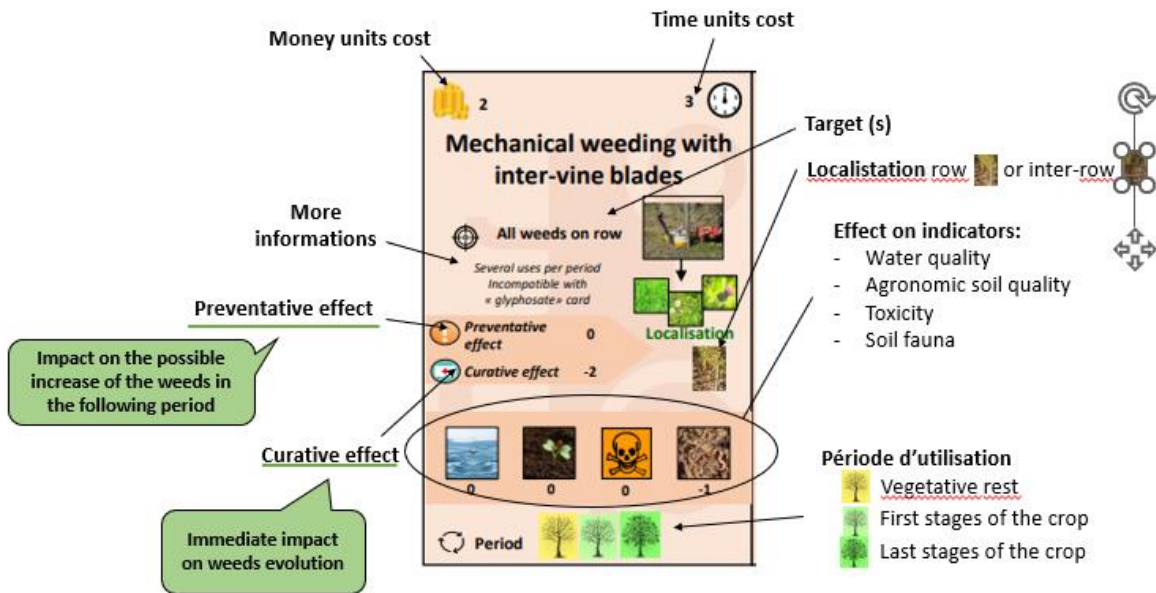


d) « Measures » cards

These cards make it possible to tackle weeds with a preventive and / or curative effect. Each type of measure is differentiated by the color of the card :

- 1) Agronomical measure
- 2) Chemical measure
- 3) Technologic tool
- 4) Physical measure
- 5) Soil tillage
- 6) Prophylaxy





Each method, **targeting one or more weeds (target)**, has a **cost in time and money**, a **period of use** and **effects on indicators** of toxicity, water quality, agronomic quality of the soil and soil fauna. These methods can generally be used multiple times in the game. Additional information can modify the parameters of these cards (number of uses, associations with other methods, etc.).

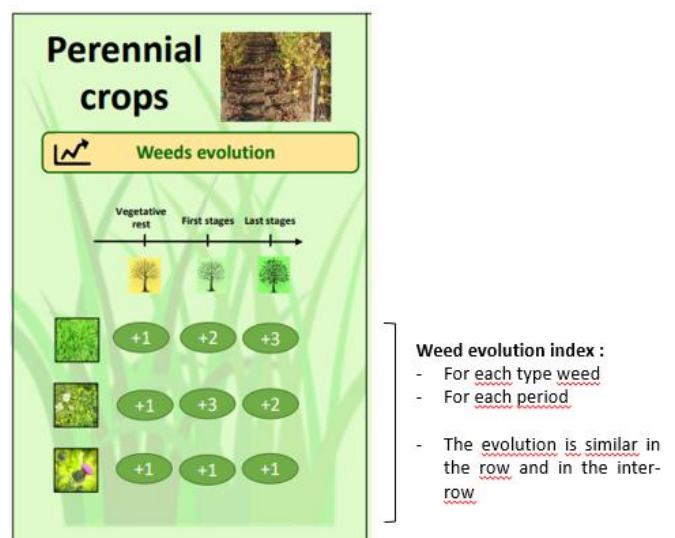
Some cards have special effects :

- Glyphosate : you can choose to play it against perennials but the cost and impacts are increased
- Localized sprayings, mapping and Dss must be combined with chemical solutions cards
- FWF card allow to win 1 time unit
- Agri-environmental measures allow to win 4 money units but chemical cards are prohibited during the next crop periods
- Some agronomical cards are preventative effects during more than on period

e) Evolution of the weeds

The card allow you to calculate the minimum effect on the evolution of each type of weeds.

You have to add the weather effect and decrease this total with the preventative effects of the measures played during the precedent period.



III. Progress of the game

1) Game setup

Place the tokens of each team in the initial position to the left of the different indicator scales.

During the game, each team will have 20 units of money for the duration of the game, and 6 units of time for each period.

The players must collectively choose (or draw lots) a type of ground common to both teams, which will be definitive for the duration of the game. Place the card on the main board.

2) Sequence of play

In the "interculture" turn:

- 1) Choose the crop to be implemented among those available, and position it on the specific player board;

Then for each of the periods of the rotation: For each period of the rotation:

- 1) Draw a weather card and place it on the main board
- 2) Update the scale for each weed type taking into account:
 - The type of crop cultivated over the period
 - Weather
 - The method implemented previously (preventive effect) [except on turn 1 – 1st intercrop]
- 3) Each player or team chooses one or more control measures among those available, taking into account:
 - The limit of the number of points available in time and money
 - The period
 - The weather
 - The type of the soil
- 4) Each player or team modifies the indicator scales (Water quality, Agronomic quality of the soil, Toxicity, Soil fauna) according to the effect of the methods selected
- 5) Deduce the curative effect of the method on weed pressure levels.
- 6) Calculate the losses in quantity and quality and modify the indicators on adapted scales (see following paragraph).

IV. Calculation of losses in quality and quantity

1) Quality

Depending on the period and the crop type considered, the quality is impacted by **grasses (summer, autumn)** and **invasive weeds**. Refer to the corresponding “crop” card.

Only during the **2nd period of cultivation**, the loss is calculated by accumulating the points corresponding to each weed by following the scale below:

- Light blue : 0 points
- Blue : 1 points
- Dark blue : 2 points
- Purple : 3 points

Example : If the weed pressure levels are respectively 4, 7, and 3 for summer grasses, fall grasses and invasives, the quality loss will be $1 + 2 + 1 = 4$ points.

2) Quantity

Depending on the period and the crop type considered, the quality is impacted by all weed types.

Selon la période et la culture considérée, la quantité est impactée par toutes les adventices présentes. Refer to the corresponding “crop type” card.

During the two periods of the crop, the loss is calculated by carrying out the accumulation of the points corresponding to each weed type by following the scale below:

- Yellow : 0 points
- Orange : 1 points
- Red : 2 points
- Dark red : 3 points

Example : If the weed pressure levels are respectively 7, 4, 1, 3, and 2, the quantity loss will be $2 + 1 + 0 + 1 + 0 = 4$ loss points.

V. Calculation of the final score

The final score is calculated at the **end of the game**. It takes into account the number of points obtained on the different indicator scales: Soil quality, Water quality, Toxicity, Soil fauna, Quality and Quantity.

Final score =

3x (Quantity points + Quality points)

+ 2x Soil fauna points

- (Soil quality points + Water quality points + Toxicity points)