Sequence 1 : Introduction to mathematical programming using GAMS

Unit 1.2 : Introduction to GAMS

Lesson 7 – A step further into GAMS

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ModelEco

Calculated parameter

A given farmer has land and labour and can grow wheat and maize, knowing that :

- The objective of the farmer is to maximize his net income (or gross margin)

- Wheat requires 25h of labour and maize 50h per ha

- The total farm area is 50 ha and the farmer can only work 2000 h a year.

- **Wheat yields represent 5 tons and maize yields 10 tons per hectare.**
- **Their production costs are 300€/ha and 500€/ha, respectively.**
- **The two cereal crops are sold 150€/ton.**

GROSS MARGIN = YIELD*PRICE-COST

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SET	C /wheat, maize/
DATA	YLD(C)
	COST(C)
	PC(C)
	GM(C)

ModelEco

- On va maintenant forcer le modèle à avoir au moins 1ha de blé.

$$\text{Max} \quad Z = 450\ X_1 + 1000\ X_2$$

$$\text{subject to} \quad X_1 + X_2 \leq 50$$

$$25\ X_1 + 50\ X_2 \leq 2000$$

$$X_1 \geq 0\ ;\ X_2 \geq 0$$

Modification dans GAMS

Au niveau des équations :

```
minble.. X('ble') =g= 1 ;
```

Au niveau des variables:

```
X.LO('ble') = 1 ;
```