

Living Lab of Luxor – Improved varieties

i. Sugarcane farms

Under this scenario, drip irrigation increases the cultivation of wheat overall, with a small decrease in sugarcane and maize production. The total reduction in water use, the main indicator in this scenario, is close to 35% compared to the baseline. The rest of the farm activities indicators have small decreases. On the total farm income, there is an increase of 15%, due to cost reduction and yield stability.

Land Use

Main crops	sugarcane (1,41 ha ~ -0,7% BAU), wheat (0,54 ha ~ +14,9% BAU), maize (0,09 ha ~ -40% BAU)
Total area	2,04 ha
Crop diversity	three crops

Farm activities

Pesticide use	0,66kg/ha (~ -5,7% BAU)
Water use	7478 m3/ha (~ -34,9% BAU)
Nitrogen leaching	42,03 Kg/ha (~ -7% BAU)

Economic

Annual income	1117,54 EGP (~ +14,8% BAU)
variable costs	

ii. Livestock farms

In this category, the land allocation is more concentrated over wheat (41% increase), against the rest of the crop. However, sugarcane also doubles the land that is cultivated, without being the dominant crop. Regarding the farm activities, there is an equal decrease over nitrogen leaching and phytosanitary products, but, the water use has a substantial decrease of 35%. On the economic indicator, the overall income is increased by 10,4% compared to the baseline.

Land Use

Main crops	sugarcane (0,08 ha ~ +100% BAU), wheat (0,54 ha ~ 38,5% BAU), maize (0,11 ha ~ -50% BAU) , clover (0,12 ha ~ -29,4% BAU), sorghum (0,13 ha ~ -18,8% BAU)
Total area	0,98 ha
Crop diversity	five crops

Farm activities

Pesticide use	0,94 kg/ha (~ -6% BAU)
Water use	3670 m ³ /ha (~ -35% BAU)
Nitrogen leaching	30,14 Kg/ha (~ -6% BAU)

Economic

Annual income	833,2 EGP (~ +10,4% BAU)
variable costs	

iii. Diversified farms

Under this scenario, the diversified farmers increase their cultivation of wheat and sorghum. The water use is decreased by 34,5% due to the drip irrigation, while the phytosanitary use and nitrogen leaching decrease slightly. On the economic, the total farm income increases by 11,2.

Land Use

Main crops	wheat (0,49 ha ~ +11,4% BAU), maize (0,24 ha ~ -31,4% BAU) , clover (0,18 ha ~ -21,7% BAU), sorghum (0,2 ha ~ +100% BAU)
Total area	1,12 ha
Crop diversity	Four crops

Farm activities

Pesticide use	1,46 kg/ha (~ -7% BAU)
Water use	4021 m ³ /ha (~ -34,5% BAU)
Nitrogen leaching	29,33 Kg/ha (~ -5,6% BAU)

Economic

Annual income	572,85 EGP (~ +11,2% BAU)
variable costs	

iv. Cereal farms

The crop allocation in cereal farms experience an exchange of land among clover and wheat. The scenario motivates farmers to produce some fodder. In the farm activities categories, the water use is decreased by 35% which is the highest one among the systems. Additionally, the nitrogen leaching is also decreased by 12%, due to the absence of the flood irrigation system, while pesticide use has a small decrease. Finally, the farm income is increased by 10% overall.

Land Use

Main crops	wheat (0,44 ha ~ -4,3% BAU), maize (0,13 ha ~ 0% BAU), clover (0,06 ha ~ +50% BAU)
Total area	0,63 ha
Crop diversity	three crops

Farm activities

Pesticide use	4,25 kg/ha (~ -6% BAU)
Water use	3522 m ³ /ha (~ -35,3% BAU)
Nitrogen leaching	28,55 Kg/ha (~ -12% BAU)

Economic

Annual income	300,8 EGP (~ +9,8% BAU)
variable costs	