# Economic Returns of Irrigation Systems for The most Important Crops in New Lands in Beni Suef Governorate

***Abstract***

This study aims to determine the most appropriate irrigation systems that achieve higher economic efficiency in the production of the most important crops in Beni Suef, determines the potential for horizontal expansion in Beni Suef according to water resources available and under use of modern irrigation systems. **The main findings are summarized as following:** Changes in productivity, amount of irrigation water, cultivated area, and the production & economic efficiency of the unit of irrigation water are reported as follow. As for tomatoes, productivity has increased by 9.3 tons in case of drip irrigation which represent an increase of 51.38% compared to productivity in flood irrigation. As for onion, productivity has increased by 6.9 tons in case of drip irrigation which represent an increase of 49.3% compared to productivity in flood irrigation. As for pepper, productivity has increased by 2.9 tons in case of drip irrigation which represent an increase of 19.5% compared to productivity in flood irrigation. As for wheat, productivity has increased by 2.5 and 0.95 bushels in case of drip irrigation and sprinkle irrigation respectively, which represent an increase of 16.7% and 6.5% compared to productivity in flood irrigation. The drip irrigation system in tomatoes is proved to reduce water consumption per feddan of tomato of about 454 cubic meters compared to flood irrigation. Change flood irrigation system into dripping system may save about 5.22 million cubic meters for Beni Suef and about 141.6 million cubic meters for Egypt. The preserved amount of water can be used to expand the area cultivated with tomatoes by about 2.2, 59.5 thousand feddans for Beni Suef and Egypt respectively. The drip irrigation system in onion is proved to reduce water consumption per feddan of tomato of about 450 cubic meters compared to flood irrigation. Change flood irrigation system into dripping system may save about 3.3 million cubic meters for Beni Suef and about 22 million cubic meters for Egypt. The preserved amount of water can be used to expand the area cultivated with onion by about 2 and 13.4 thousand feddans for Beni Suef and Egypt respectively considering that the water requirements per feddan of onion is 1650 cubic meters.The drip irrigation system in pepper is proved to reduce water consumption per feddan of tomato of about 542 cubic meters compared to flood irrigation. Change flood irrigation system into dripping system may save about 1.95

million cubic meters for Beni Suef and about 40.5 million cubic meters for Egypt. The preserved amount of water can be used to expand the area cultivated with onion by about 0.72 and 15 thousand feddans for Beni Suef and Egypt respectively. As for wheat, the drip irrigation system in wheat is proved to reduce water consumption per feddan of tomato of about 470 cubic meters compared to flood irrigation. Change flood irrigation system into dripping system may save about 4.4 million cubic meters for Beni Suef and about 292.3 million cubic meters for Egypt. The preserved amount of water can be used to expand the area cultivated with onion by about 2.5 and 166 thousand feddans for Beni Suef and Egypt respectively. The sprinkle irrigation system in wheat is proved to reduce water consumption per feddan of tomato of about 250 cubic meters compared to flood irrigation. Change flood irrigation system into dripping system may save about 4.3 million cubic meters for Beni Suef and about 155.5 million cubic meters for Egypt. The preserved amount of water can be used to expand the area cultivated with onion by about 1.2 and 78.5 thousand feddans for Beni Suef and Egypt respectively.

**The study Recommendations:**

Expand the use of modern irrigation systems in the new lands for various agricultural crops as it may increase the area cultivated of investigated crops. Provide irrigation kits with reasonable prices to farmers through agricultural associations to encourage farmers to switch from flood irrigation to modern irrigation, especially in the new land dedicated to graduates.

| المتقدم للترقية | رئيس مجلس القسم | عميد الكلية |
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| الدكتور/ عيد نعيمي فيصل | الأستاذ الدكتور/ إيناس صادق | الأستاذ الدكتور/ منى الخشاب |