INTERNATIONAL JOURNAL OF TECHNOLOGY AND ACADEMIC RESEARCH

ISSN: 2224-6878 | Pakistan Volume 6, No. 10.

IF: 14.91 | 2026 http://waerasia.org/index.php/ijtar

UDK 635.3

THE YIELD AND AGROTECHNICAL SIGNIFICANCE OF CHINESE-BRED HOT PEPPER (CAPSICUM ANNUUM L.) HYBRIDS UNDER THE CONDITIONS OF THE ANDIJAN REGION OF UZBEKISTAN

Abdullajonova Madinabonu Anvarjon qizi
Master's student, Andijan Institute of Agriculture and Agrotechnologies
Doi: https://doi.org/10.5281/zenodo.23218917

Annotation. This article highlights the growing global and domestic interest in, and demand for, the cultivation of hot pepper (*Capsicum annuum* L.). The study was conducted in the soil and climatic conditions of the Oltinkol, Jalaquduq, and Kurgontepa districts of the Andijan region. In the experiments, the Chinese-bred hybrid varieties "Hongkong 23," "Hongkong 25," and "Hongkong 26" were grown using drip irrigation and planting under plastic mulch film. The results were compared with the local variety "Margelanskiy 330," demonstrating that the foreign hybrids have higher biological potential and use water and nutrients more efficiently.

Keywords: Hot pepper (*Capsicum annuum* L.), hybrid varieties, drip irrigation, planting under plastic mulch, productivity, soil moisture, agrotechnology.

Introduction. Today, interest in and demand for hot pepper among agricultural crops is growing worldwide with each passing day. Globally, hot pepper (*Capsicum annuum* L.) is grown on 2.3 million hectares, producing 36.9 million tons of output. In the leading hot pepper–producing countries (China, Spain, India, Turkey, Indonesia, and Mexico), average yields are 80–90 tons per hectare in greenhouses and 14.1–18.3 tons in open fields.

In leading countries, as well as in major vegetable research centers, modern methods of genetics, breeding, and biotechnology are being applied to develop high-yielding, high-quality, industrial-grade, and export-oriented varieties suited to cultivation in both open fields and greenhouses, taking into account the soil and climatic conditions of each region. Meeting the plant's water requirement is one of the most important factors. In terms of moisture demand, hot pepper is a plant that is demanding of soil moisture; during the growing season, soil moisture before irrigation should not fall below 75–80% of field moisture capacity. In addition, hot pepper is less demanding of relative air humidity than tomato, and grows and develops well at an air humidity of 55–60%.

Methodology. The research was conducted under the specific soil and climatic conditions of the Oltinkol, Jalaquduq, and Kurgontepa districts of the Andijan region. During the experiment, modern resource-saving technologies were applied: drip irrigation and planting on soil covered with black plastic film.

High-yielding hybrid varieties of Chinese breeding were selected for testing: "Hongkong 23," "Hongkong 25," and "Hongkong 26." During the growing season, irrigation was carried out a total of 12 times, and with each irrigation, the mineral fertilizers and protective agents (pesticides) needed for the plants' growth and development were applied. A planting scheme of 75 × 17 × 1 was chosen. For comparative analysis, the locally zoned "Margelanskiy 330" variety, widespread in all regions of the republic, was used as the control.

ISSN: 2224-6878 | Pakistan Volume 6, No. 10.

IF: 14.91 | 2026 http://waerasia.org/index.php/ijtar

Results. Scientific and practical observations and calculations showed that the modern agrotechnologies introduced (drip irrigation, cultivation under plastic film) and the biological characteristics of the Chinese hybrid varieties had a sharply positive effect on yield.

On the experimental plots, taking into account the soil conditions and the characteristics of the hybrid varieties, the following yield indicators were recorded:

The "Hongkong 23" hybrid had an average yield of 55 tons/ha.

The "Hongkong 25" hybrid reached an average yield of 63 tons/ha.

The "Hongkong 26" hybrid showed the highest result, with a yield of 64 tons/ha.

For comparison, the biological and economic characteristics of the local standard "Margelanskiy 330," a variety zoned in the republic, were as follows: the average weight of a single fruit was 10–12 grams, and its average yield in open fields was found to be around 14–18 tons per hectare.

Analysis of Results. Analysis of the results showed that the productivity of the foreign hybrid varieties was nearly 3.5–4 times higher than that of the local variety. This is explained by the following factors. *Economy of water and nutrients:* Delivering fertilizers and protective agents directly to the plant roots with each irrigation through the drip irrigation system ensured a stable nutrient environment. *Effect of cultivation under plastic film:* Laying black plastic film on the soil limited weed growth, retained soil moisture, and optimized the temperature regime around the roots. *Hybrid potential:* The "Hongkong" series hybrids are genetically highly productive, adapted quickly to the soil conditions, and made maximum use of mineral nutrition.

Conclusion. Based on the research results, the following scientific and practical conclusions were reached: In the soil and climatic conditions of the Andijan region, growing the Chinese-bred hot pepper hybrids "Hongkong 23," "Hongkong 25," and "Hongkong 26" using drip irrigation and planting under plastic film technology yields high returns. Compared with the local "Margelanskiy 330" variety, these hybrids produced 55–64 tons per hectare, demonstrating extremely high economic efficiency. Maintaining soil moisture before irrigation at 75–80% of field moisture capacity during the growing season, together with feeding the plants with fertilizers and protective agents 12 times, made it possible to fully unlock the plants' potential. In the future, introducing such high-yielding hybrid varieties in other regions of the republic will help supply the domestic market with high-quality vegetable products and sharply increase export potential.

References

1. Mirzayev F.M., Zuyev V.I. *Fundamentals of Vegetable and Melon Growing*. — Tashkent: "O'qituvchi," 2019.
2. Atabayeva H.N., Xudayqulov J.B. *Crop Science*. — Tashkent: "VNESHINVESTPROMS," 2018.
3. FAO (Food and Agriculture Organization). *Statistical Yearbook: World Food and Agriculture*. — Rome, 2023.
4. Avdeev Y.I. *Selection and Seed Production of Vegetable Crops*. — Moscow: Kolos, 2021.