RESULTS OF STUDIES ON VARIOUS TOPPING METHODS AND PLANTING DENSITY IN THE CONDITIONS OF SURXONDARYO REGION

Boboyeva Nodira To'xtamishovna - Termez State University, Teacher(PhD).
Surkhandarya, Uzbekistan

Abstract. The article examines the impact of planting density and topping methods on the growth and yield of medium- and fine-fiber cotton varieties in the conditions of the Surxondaryo region. The experiments utilized both chemical (using "Entogean" preparation) and manual topping methods. Results indicate that optimal selection of planting density and topping methods can enhance the number and quality of yield elements and shorten the cotton maturation period.

Keywords. Cotton planting density, Topping methods, Yield, Entogean preparation, Medium- and fine-fiber varieties

Аннотация. В статье изучено влияние плотности посева и методов прищипки на развитие и урожайность средне- и тонковолокнистых сортов хлопка в условиях Сурхандарьинской области. В экспериментах использовались химические (с препаратом "Энтожеан") и ручные методы прищипки. Результаты показывают, что оптимальный выбор плотности посева и методов прищипки способствует увеличению количества и качества элементов урожая, а также сокращению сроков созревания хлопка.

Ключевые слова. Плотность посева хлопка, Методы прищипки, Урожайность, Препарат Энтожеан, Средне- и тонковолокнистые сорта

Cotton growth and development are influenced by soil fertility, irrigation, fertilization, sowing dates and methods, soil cultivation, pruning methods and timing, and pest and disease management. Experiments have been conducted to study the impact of plant density and pruning methods on cotton growth and development. Pruning is considered one of the most crucial agronomic practices. Timely and effective pruning accelerates growth and development, reduces the shedding of yield elements, increases the number of flowers and bolls, mitigates

pest damage, hastens boll maturation by 5-10 days, and boosts yield by 3-4 quintals per hectare, sometimes up to 6-8 quintals.

Pruning can be performed manually, mechanically, or chemically using substances like Sojean and Entojean. Depending on the characteristics of the cotton variety, pruning is recommended when the plant develops 13-14 fruiting branches in fertile soils, 12-13 branches in moderately fertile soils, and 11-12 branches in less fertile soils. In double-row plantings, pruning is done when 10-11 branches form.

Manual pruning involves pinching the topmost 1-2 cm of the main stem, which is typically light in color. Incorrect pruning, such as removing 5-10 cm of the stem, negatively affects the plant and reduces yield by 3-5 quintals per hectare due to the loss of buds and flowers.

Mechanical pruning is performed using devices mounted on cultivators to trim the top of the cotton plant.

Chemical pruning is effective for enhancing growth and yield. It involves applying Sojean or Entojean at 250-300 liters per hectare mixed with water, either 5-7 days before or after irrigation. The chemicals are absorbed through the leaves, uniformly distributed, and inhibit cell division. This stops vertical and lateral growth, giving the plant a compact, conical shape, improving air circulation, and creating a favorable microclimate. This results in the development of 3-4 large bolls at the top, accelerates maturation by 7-8 days, increases the first harvest by 6-7 quintals per hectare, and enhances overall yield by 3-8 quintals or more.

Entojean is a growth regulator composed of 98% mepiquat chloride. It prevents excessive vegetative growth, promoting the formation of bolls in the lower parts of the plant, which mature earlier and boost yield. Proper application of Entojean can increase yield by 5-10 quintals per hectare.

Recommended Entojean dosages vary based on the growth stage and plant density. For mid-fiber "Bukhara-102" varieties with a density of 90-100 thousand plants per hectare, 90 g/ha is applied; for 110-120 thousand plants/ha, 95 g/ha. For

fine-fiber "Surkhan-103," with a density of 120-130 thousand plants/ha, 100 g/ha is used, and 140-150 thousand plants/ha require 105 g/ha.

Research shows no significant differences among variants in early phenological observations in June. However, after pruning, differences were observed. In September, the height of "Bukhara-102" mid-fiber plants with 90-100 thousand plants per hectare was 93.0-105.2 cm, while 110-120 thousand plants/ha resulted in heights of 95.0-109.0 cm. Without pruning, heights increased by 10-15 cm. Denser planting reduced fruiting branches and yield elements per plant but increased overall yield. Chemical pruning generally outperformed manual pruning.

Similar trends were observed for "Surkhan-103" fine-fiber cotton. With 120-130 thousand plants per hectare, plant heights ranged from 95.0-110.2 cm, increasing to 100.6-115.0 cm with 140-150 thousand plants/ha. Without pruning, heights increased by 11-15 cm.

In July, the number of damaged yield elements was counted. For "Bukhara-102," 20.4-26.6 elements formed, with 5-9 shedding. For "Surkhan-103," 6-8 elements shed.

In conclusion, in the loamy soils of Surkhandarya region, reducing plant density and timely chemical pruning increases the number of fruiting branches and yield elements, enhancing cotton productivity.

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