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**ACHIEVING QUALITY AND EFFICIENCY IN COTTON GINNING PLANTS**

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**Abstract**

This paper explores strategies for achieving quality and efficiency in cotton ginning plants. The focus is on optimizing the ginning process to maximize cotton quality while minimizing operational costs and resource consumption. Key improvements include the implementation of advanced ginning technologies, automation, and real-time monitoring systems. Advanced ginning technologies, such as rotary knife gins and automated lint cleaners, are proposed to enhance fiber quality and reduce contamination. Automation through the use of robotics and programmable logic controllers (PLCs) can streamline operations, reduce labor costs, and increase throughput. Real-time monitoring systems equipped with sensors and data analytics enable continuous quality assessment and process adjustments, ensuring optimal performance. These enhancements aim to provide a more efficient and sustainable cotton ginning process, ultimately benefiting both producers and consumers by delivering higher quality cotton at a reduced operational cost.

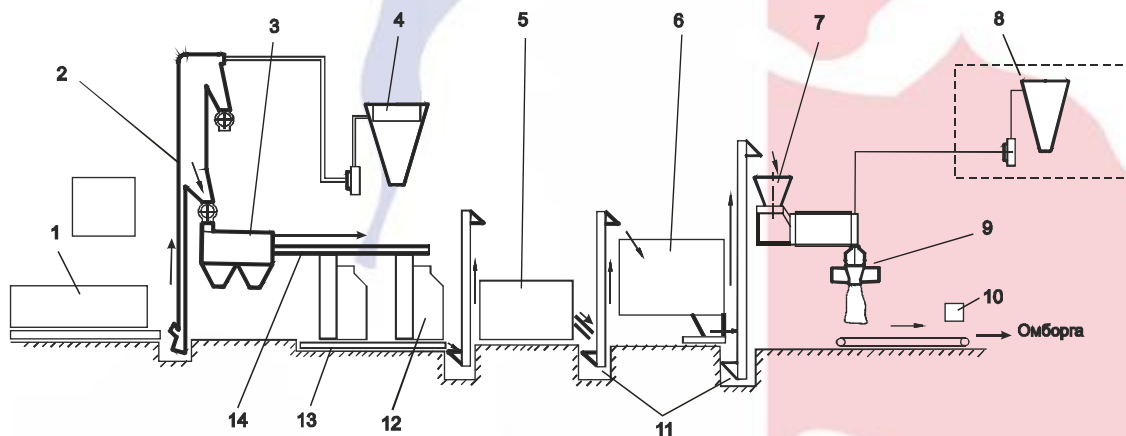
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**Keywords:** efficiency, pile seed seeds, screw, quality, saw, cylinder, medication, dosage, bunker-dozer, improvement.

At present, mainly two types of pile and pile seeds are grown in our country. The quality indicators of these seeds are UzDSt 663:2017 "Seed seeds. Technical conditions" must meet the requirements of the state standard. The seed preparation workshops ensure that the seeds meet the standard requirements.

Based on the decision of the Cabinet of Ministers of the Republic of Uzbekistan on measures to improve the seed production system, 31 specialized pile and pileless seed production workshops were launched in our Republic [1].

The installation sequence of the modern technological equipment used in the preparation of pile seed is presented in Figure 1 below.



*1-reception bunker UPS; 2-ChSA aggregate; 3- LLC mechanical seed cleaner (Chase aggregate to the complex enters ); 4-cyclone;*

*5-hair seed sorting and cleaning car; 6-BDOS bunker dispenser; 7-dosing device; 8-dirty air cleaning device; Measure out the 9th to cover apparatus; 10-bag bet car; 11-elevators; 12-5LP linter; 13-gathering screw conveyor; 14-distributing screw conveyor*

Figure 1. Scheme of the installation sequence of the pile seed preparation technological equipment system

Hairy seed is cleaned from impurities, sorted in ChSA unit and L-JS-4/L sorter, and treated using D-2-VH or ChDM treating machines [2].

In order to ensure continuous technological process, a hopper-dispenser (Fig. 2) is installed in the seed preparation workshops for collecting pile seed and dosing it in the required amount for production, which allows us to ensure the quality and efficiency of the obtained pile seed.

By continuously sending the product to the hopper-doser, it performs the function of periodic transfer and the pile seed is installed in the technological system of seed preparation. Depending on the productivity of the seed production workshop, in order to ensure continuous operation of the workshop and to achieve efficiency, the capacity of the hopper was chosen to accommodate 3 tons of products, and 2 of such hoppers are installed in each system.

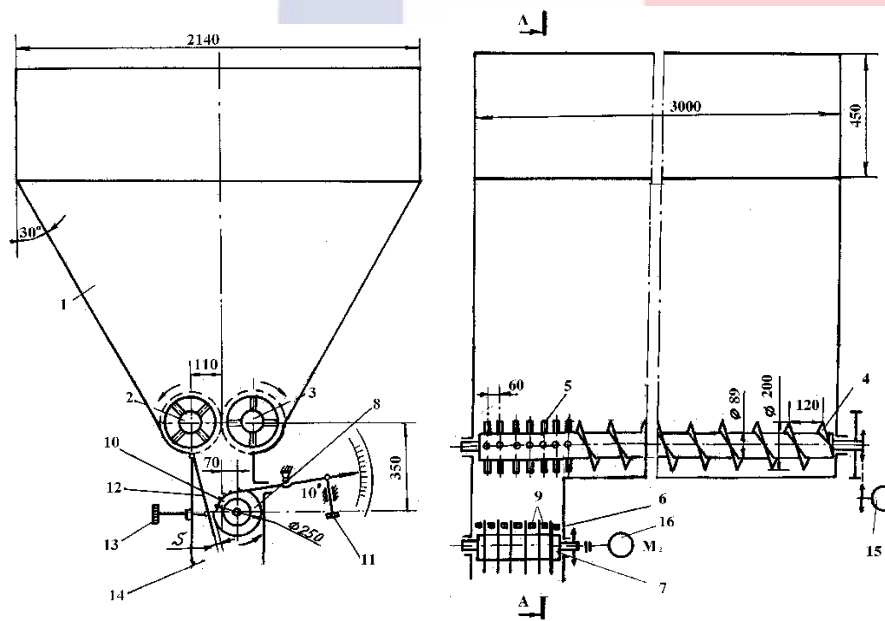


Figure 2. BDOS type hopper-doser scheme

In the lower part of the hopper-doser, there are combined shafts 2, 3, which rotate opposite to each other, a seed collecting hopper 1 and a doser 6 located under it. Each 2 and 3 shaft has 4 parts with screws and 5 parts with pins. The dispenser consists of saw cylinder 7 and comb 9. Adjustment of seed transfer performance in two modes with a dozer that is, in the coarse and fine mode, respectively, the slot between the saw cylinder and the movable wall is made using the screw mechanism 13, which sets the "S" and the screw mechanism 11, which provides adjustment of the height of the saw leaving the comb.

When the pile seed preparation technology and the working processes of machine aggregates in this technological process were studied and analyzed, it was found in the process of using the BDOS hopper dosing device that the dimensions of the dosing part of the hopper are not justified, causing uncertainty and difficulties during the preparation of the required amount of pile seed. Of course, this does not affect the quality of the next technological process, that is, the medication process.

As a result of the scientific research conducted to eliminate the above shortcomings, an improved scheme of the bunker dispenser device was developed. Currently, working drawings of the device are being prepared based on this scheme.

## References

1. Т.Кулиев, Қ.Жуманиязов, А.Акрамов. Пахтани дастлабки ишлаш бўйича қўлланма, Тошкент-2019
2. Т.Кулиев, А.Акрамов. Уруғлик чигит тайёрлаш технологик регламенти УЧТ 97-2022.
3. Bobojonov, H.T.; Yusupov, A.A.; Yuldashev, J.Q.; Sadikov, M.R.; (2020) Influence of deformation properties of yarn on the quality of knitted fabric. Test Engineering and Management. May-June 2020 Pages 29502-29513. <http://testmagzine.biz/index.php/testmagzine/article/view/13601>
4. Improvement of Yarn Quality by Placing an Additional Compacting Device Between the Stretching Rollers in A Ring Spinning Machine A Yusupov, H Bobojanov, S Yusupov, M Yo'ldoshev - Eurasian Journal of Engineering and Technology, 2022.
5. Evaluation of the relationship between the deformation properties of spun yarn and the properties of the fabric J Soloxiddinov, H Bobojanov, A Yusupov, S Alixonov... - AIP Conference Proceedings, 2023. <https://doi.org/10.1063/5.0145421>
6. Yusupov Alijon Abdujabbor o'g'li, Yo'ldoshev Muxriddin To'xtamurod o'g'li, Jurayeva Muslima Mahmudjon qizi, & Mirzayeva Ravshanoy Mirzarahmat qizi. (2022). Improving the quality of yarns by installing an additional compactor on the spinning machine. E Conference Zone, 280–282. Retrieved from <https://www.econferencezone.org/index.php/ecz/article/view/723>
7. Yusupov Alijon Abdujabbor o'g'li, Yusupov Sabirjon Abdujabborovich, Yo'ldoshev Muxriddin To'xtamurod o'g'li, & Jurayeva Muslima Mahmudjon qizi. (2022). Scientific research of improving the quality of yarns on a spinning machine. e Conference Zone, 19–21. Retrieved from <https://www.econferencezone.org/index.php/ecz/article/view/907>.