AMERICAN JOURNALS
Open Access, Peer Reviewed Journals

American Journal of Technology and Applied Sciences
ISSN (E): 2832-1766| Volume 19, December, 2023

A MACHINE FOR CONTINUOUS PLANTING OF TREE SEEDLINGS

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ABSTRACT

In this paper, a fruit tree seedling planting machine is used in the establishment of new orchards to ensure continuous and mechanized planting of seedlings. It shows the costs used in planting seedlings and ways to reduce labor costs and increase productivity.

KEYWORDS

Deep softener, soil, seedling, harrow, disk harrow, conical roller, frame.

Introduction

The natural climate of our republic is suitable for the cultivation of a wide range of high-quality exportable horticultural and viticultural products. Therefore, in our country, great attention is paid to the development of horticulture, as well as all areas of agriculture. In addition, in Uzbekistan, attention is being paid to the production of energy-efficient equipment for the establishment of fruit orchards and high yield, which implements several technological processes in accordance with agrotechnical requirements [1-4]. In the development strategy of New Uzbekistan for the years 2022-2026, including "supplying agro-industrial enterprises with raw materials and increasing the volume of production by 1.5 times, increasing the volume of industrial fruits and vegetables to 3.4 million tons, agriculture It is a priority task to organize the production of the types of machinery and trailers needed for the production in a cluster method, to effectively use the production capacity, to bring the level of localization to 50%, to reduce the cost of machinery products by an average of 20% [5-11]. In order to fulfill these tasks and turn horticulture into a profitable sector of agriculture, it is necessary to mechanize all the work performed in it. In horticulture, as well as in any crop care technology, work such as preparing the land for planting seedlings, planting seedlings, combating pests and diseases, harvesting and sorting products is performed [12-19].

The Main Part

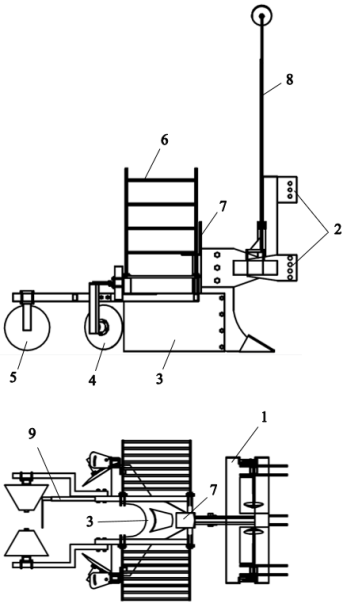
Nowadays, before planting seedlings in our republic, the soil is plowed to a depth of 30-35 cm, chiseled and successively ground. After these processes are completed, pits for planting seedlings are dug from the specified place. Pits are dug by special digging units KYA-100, KNYu-100, KRK-60 or by hand

in the size of 60x60x60 [20-27]. Burying seedlings is done by hand. This leads to higher labor costs and other consumable costs.Based on these points, it is new in QXMITIa machine used in the establishment of orchards and continuous planting of fruit tree seedlingshas been developed and scientific and innovative studies are being conducted to justify its parameters.

Planting machineIt consists of frame 1, suspension device 2, deep softener-etagochkich 3, disc harrow 4, conical roller 5, place for seedling stock (bunker) 6, seat 7, iztortkich 8 and screen 9 (look at the picture).

In the process of worka tree seedling machine opens a pit for planting seedlings, buries and compacts the planted seedling with soil.

Deep softener-egat opener 3 is immersed in the ground to a depth of 50 cm. As a result, it softens the ground, pushes the soil lumps to two sides with its side walls and creates a pit up to 40 cm wide. To do this, the egate opener is fixed to the deep softener located in front [28-34]. This makes it easier for the deep softener to sink into the soil. The side walls of the deep softener-egatechoki are set at an acute angle relative to each other, creating a space behind them that accommodates a seedling. The side walls of the egate opener are made high and long so that the soil does not fall into the created space and bury it. When the worker sitting on the seat 7 is walking (~1.0-2.0 km/h) and the car reaches the destination, he takes one of the seedlings collected in the hopper 8 and softens it deeply on the root side. -egat puts the key in the bottom of the space between the side walls and holds it for a short time [35-41].



Frame 1; 2nd suspension device; 3- deep softener-holder; 4-disc fan; 5-conical roller; 6th place for the reserve of seedlings (bunker); 7th seat; 8th puller; Screen 9

Figure 1. Planting machine

The soil that naturally spills from the end of the side walls of the deep softener falls on the seedling roots and begins to bury them. The disk cultivators 4 installed after the Egat opener push the soil over the partially buried root and ensure complete burial of the seedling. In order not to leave holes in the soil where the roots of the planted seedlings are buried, the two edges of the planted seedlings are

compacted at the level of agrotechnical requirements with the help of conical rollers 5. Before the screen 9 reaches the previously planted seedling, the worker has time to take the next seed from the hopper 6. The above-mentioned process is repeated in the next place where seedlings are planted [39-46].

The machine is equipped with right and left tractors 8 of the required length, which scratch the soil on the unplanted side of the field and leave a mark. In order for the distance between the rows of seedlings to be equal to each other, the machine moves over the track created by the tractor in its next run.

Adjusting the depth of the machine's soil softener, that is, the depth of burying the seedling, is carried out by changing the position of the tractor pulls in the holes opened in the suspension device 2.

Conclusions

Planting machine for fruit tree seedlings continuous and mechanized planting of seedlings is ensured when used in the establishment of new gardens. This allows to reduce costs and labor costs used in planting seedlings and increase productivity.

References

1. Ogli, I. A. A., & Maribjonovich, M. M. (2023). Test research method of determining the basic norm of fuel consumption of cars. *International Journal of Advance Scientific Research*, *3*(06), 362-367.
2. Z.M. Xametov, S.U. Xujamqulov, A.S. Xusanjonov, Q.X. Masodiqov Avtomobillar konstruksiyasi.”FARPI ALPHA”nashrioti, 2022
3. Khujamqulov, S. (2023). Measures to protect the environment from the harmful effects of motor transport. *European Journal of Emerging Technology and Discoveries*, *1*(4), 8-13.
4. Fayzullayev, X., & Mirtemirov, A. (2023). Avtomobil dvigatelining moylash tizimiga texnik xizmat ko'rsatish va ta'mirlash ishlari texnologiyasi. *Инновационные исследования в современном мире: теория и практика*, *2*(6), 31-35.
5. Fayzullayev Xaydarali, Ne'matov Ibrohimjon Alijon o'g'li. (2023). Avtomobillarga texnik xizmat ko'rsatish sohasida avtoservisni rivojlantirish tajribasi va istiqbollari. «zamonaviy Dunyoda Ilm-fan Va Texnologiya» Nomli Ilmiy-amaliy Konferensiya, 2(4), 62–65.
6. Ikromov, I. A., Abduraximov, A. A., &Fayzullayev, H. (2021). Experience and Prospects for the Development of Car Service in the Field of Car Maintenance. ISJ Theoretical & Applied Science, 11(103), 344-346.
7. Qobulov, M., Ismadiyorov, A., & Fayzullayev, X. (2022). Analysis of the braking properties of the man cla 16.220 for severe operating conditions. European International Journal of Multidisciplinary Research and Management Studies, 2(03), 52-59.
8. Sahtarov, X. A. O., & Fayzullayev, X. (2022). Alternativ yoqilg‘ilarda ishlaydigan avtomobil konstruksiyalari tahlili. Academic research in educational sciences, 3(4), 1080-1087.
9. Xaydarali Fayzullayev. Vehicle Motion Model with Wheel Lock. Eurasian Journal of Engineering and Technology.2022/9/14
10. Xolahmad Abduholiq O‘g‘li Sahtarov, Xaydarali Fayzullayev. Academic research in educational sciences. 2022.

11. Maxammadjon Alijon O‘G‘Li Qobulov, Asrorjon Anvarjon O‘G‘Li Ismadiyorov, Xaydarali Fayzullayev. Academic research in educational sciences. 2022.
12. Fayzullaev Xaydarali. Analysis of the chemical composition of car tire rubber International Journal of Advance Scientific Research. 2022/12/24.
13. Xaydarali Fayzullayev, Azamat Mirtemirov. Avtomobil dvigatelining moylash tizimiga texnik xizmat ko'rsatish va ta'mirlash ishlari texnologiyasi. Инновационные исследования в современном мире: теория и практика. 2023/2/9
14. Xaydarali Fayzullayev, Ibrohimjon Ne'matov. Avtomobillarga texnik xizmat ko'rsatish sohasida avtoservisni rivojlantirish tajribasi va istiqbollari. Наука и технология в современном мире. 2023/1/30.
15. Imamovich, B. B., Nematjonovich, A. R., Khaydarali, F., Zokirjonovich, O. O., & Ibragimovich, O. N. (2021). Performance Indicators of a Passenger Car with a Spark Ignition Engine Functioning With Different Engine Fuels. *Annals of the Romanian Society for Cell Biology*, 6254-6262.
16. С.М.Ходжаев, М.С.Низомиддинова, Ч.О.Камбарова, & Н.С.Ходжаева (2022). Организация станции технического обслуживания при Ферганском политехническом институте. Science and Education, 3 (10), 265-274.
17. Обидов, Н. Г. (2019). Фрезерные дорожные машины в условиях эксплуатации в жарком климате узбекистана. In *Подъемно-транспортные, строительные, дорожные, путевые машины и робототехнические комплексы* (pp. 377-379).
18. Gayrat, B., Bekhzod, U., & Nuriddin, O. (2022). Determination of angles of sliding and rolling of potato tubers on surfaces consisting of different materials. *Universum: технические науки*, (4-12 (97)), 24-26.
19. Бахадиров FA, У. Б. (2021). Обидов HF Картошка туганакларини саралаш учун янгича конструкциядаги барабанли саралаш машинаси. *Научно-технический журнал ФерПИ. Фергана*, (1).
20. Таджиходжаева, М. Р., & Обидов, Н. Г. Конструктивные системы в природе и дорожных машинах. *Рецензенты: генеральный директор РУП «Гомельавтодор» СН Лазбекин*, 124.
21. Xujamkulov, S., Abdubannopov, A., & Botirov, B. (2021). Zamonaviy avtomobillarda qo’llaniladigan acceleration slip regulation tizimi tahlili. *Scientific progress*, *2*(1), 1467-1472.
22. Xujamqulov, S. U., Masodiqov, Q. X., & Abdunazarov, R. X. (2022, March). Prospects for the development of the automotive industry in uzbekistan. In *E Conference Zone* (pp. 98-100).
23. Meliboyev, A., Khujamqulov, S., & Masodiqov, J. (2021). Univer calculation-experimental method of researching the indicators of its toxicity in its management by changing the working capacity of the engine using the characteristics. *Экономика и социум*, (4-1), 207-210.
24. Fayziev, P. R., Tursunov, D. M., Khujamkulov, S., Ismandiyarov, A., & Abdubannopov, A. (2022). Overview of solar dryers for drying lumber and wood. *American Journal Of Applied Science And Technology*, *2*(04), 47-57.
25. Xujamqulov, S. U. O. G. L., & Masodiqov, Q. X. O. G. L. (2022). Avtotransport vositalarining ekspluatatsion xususiyatlarini kuzatish bo'yicha vazifalarni shakllantirish. *Academic research in educational sciences*, *3*(4), 503-508.

26. Masodiqov, Q. X. O. G. L., Xujamqulov, S., & Masodiqov, J. X. O. G. L. (2022). Avtomobil shinalarini ishlab chiqarish va eskirgan avtomobil shinalarini utilizatsiya qilish bo'yicha eksperiment o'tkazish usuli. *Academic research in educational sciences*, *3*(4), 254-259.
27. Khujamkulov, S. U., & Khusanjonov, A. S. (2022). Transmission system of parallel lathe machine tools. *ACADEMICIA: An International Multidisciplinary Research Journal*, *12*(2), 142-145.
28. Umidjon o‘g‘li, K. S., Khusanboy o‘g‘li, M. Q., & Mukhammedovich, K. S. (2022). The formation of tasks for overview of operating properties of vehicles. *American Journal Of Applied Science And Technology*, *2*(05), 71-76.
29. Khujamqulov, S. (2022). A method of conducting experiments on the production of car tires and the disposal of obsolete car tires. *Science and innovation*, *1*(A3), 61-68.
30. Qobulov, M., Jaloldinov, G., & Masodiqov, Q. (2021). Existing systems of exploitation of motor vehicles. *Экономика и социум*, (4-1), 303-308.
31. Ходжаев С.М., Рахмонова С.С. (2022). Экономия ресурсов при эксплуатации, обслуживании автомобильной техники. Американский журнал междисциплинарных исследований и разработок , 5 , 18–27.
32. Otabayev, N. I., & Xodjayev, S. M. Measurement of tires pressure and load weight on the.
33. Abduraxmonov, A. G., Xodjayev, S. M., Otaboyev, N. I., & Abduraximov, A. A. (2022). Formation of products from powdered polymers by rotational and blowing method. European International Journal of Multidisciplinary Research and Management Studies, 2(03), 41-51.
34. Maxmudov, N. A., Ochilov, T. Y., Kamolov, O. Y., Ashurxodjaev, B. X., Abdug'Aniev Sh, A., & Xodjayev, S. M. (2021). TiN/Cr/Al2O3 and TiN/Al2O3 hybrid coatings structure features and properties resulting from combined treatment. *Экономика и социум*, (3-1 (82)), 176-181.
35. Xodjayev, S., Xusanjonov, A., & Botirov, B. (2021). Transport Vositalari Dvigatellarida Dimetilefir Yoqilg’isidan Foydalanish. Scientific progress, 2(1), 1531-1535.
36. Xodjayev, S., Xusanjonov, A., & Botirov, B. (2021). Gibrid dvigatelli avtomobillardan foydalanib ichki yonuv dvigatellari ishlab chiqargan quvvat samaradorligini oshirish va atrof-muhitga chiqarilayotgan zararli gazlarni kamaytirish. Scientific progress, 2(1), 1523-1530.
37. Qobulov, M., Ismadiyorov, A., & Fayzullayev, X. (2022). Overcoming the Shortcomings Arising in the Process of Adapting Cars to the Compressed Gas. Eurasian Research Bulletin, 6, 109-113.
38. Qobulov, M. A. O. G. L., Ismadiyorov, A. A. O. G. L., & Fayzullayev, X. (2022). Yengil avtomobillarga siqilgan gazga moslashtirish jarayonida yuzga keladigan kamchiliklarni bartaraf etish. Academic research in educational sciences, 3(4), 471-477.
39. Otabayev, N. I., Odilov, O. Z., & Ibrohimov, O. N. (2023). The problem of ensuring the safety of vehicles in braking modes. European Journal of Emerging Technology and Discoveries, 1(4), 1-7.
40. Imamovich, B. B., Zokirjonovich, O. O., Ibragimovich, O. N., & Rashidovich, F. P. (2022). Method For Determining The Cetan Numbers Of Synthetic Diesel Fuel. Journal of Positive School Psychology, 6(9), 3827-3833.
41. Ibragimovich, O. N., & Zokirovich, O. O. (2022). Features of the use of liquefied petroleum gas with the addition of dimethyl ether as a fuel for a car with a spark ignition engine. Innovative Technologica: Methodical Research Journal, 3(10), 139-148.
42. Ibragimovich, O. N. (2022). Mathematical model of diesel internal combustion engine subsystem. Innovative Technologica: Methodical Research Journal, 3(09), 22-28.

43. Otaboyev, N. I., Qosimov, A. S. O., & Xoldorov, X. X. O. (2022). Avtopoezd tormozlanish jarayonini organish uchun avtopoezd turini tanlash. Scientific progress, 3(5), 87-92.
44. Qosimov, A. S., & Srojidinov, D. R. (2023). Avtopoezdlar tormoz mexanizimlari pnevmatik quvirlarining texnik holatini, avtopoezdlarning mos turiga tadbiq qilish. *Educational Research in Universal Sciences*, 2(3), 474-480.
45. Tojiboyev, S. I. (2023). Determination of the main indicators of the engine cooling system. *European Journal of Emerging Technology and Discoveries*, *1*(3), 60-64.
46. Shermukhamedov, A., Astanov, B., & Tojiboev, S. (2023, January). Modeling of Thermal Processes in Flow-Through Hydraulic Drives. In *International Scientific Conference Fundamental and Applied Scientific Research in the Development of Agriculture in the Far East* (pp. 486-495). Cham: Springer Nature Switzerland.