DEVELOPMENT OF POWER PLANTS WHEEL TRACTORS BASED ON ELECTRICAL SOURCES

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One of the important tasks of any state is food security. According to the Food and Agricultural Organization of the United Nations, the number of people on planet Earth will exceed 9 billion people, which is pushing for an increase in food production. This state of affairs leads to the introduction of the latest technologies in the agricultural and industrial sector, which solve the problem of increasing the productivity of agricultural machinery. At the same time, strict requirements regarding environmental safety of agricultural machinery are introduced. Taking into account such trends, the tasks of transition from "classical" power sources (diesel fuel) to alternative ones, in particular electric, are becoming urgent.

John Deere has offered fully electric tractors. GridCON autonomous tractor with permanent connection to the power grid from the field site. The tractor is equipped with a special reel with a 1 km long power cable installed in the front of the tractor. The cable powers two electric motors, one with a power of 100 kW to drive the tractor, and the other with a power of 200 kW to output power to the implements. The tractor has a maximum speed of 20 km/h. Two fully electric John Deere tractors are also known: the 1RE model, an all-electric prototype of a small compact tractor with an expected operating time of 4.5 hours on a single charge; the second is Joker, a prototype fully electric and fully autonomous car. Fendt has introduced the e100 Vario, which has an output power of 50 kW with a lithium-ion battery with a capacity of 100 kWh and a voltage of 650 V. For charging, either a current of 400 V and a power of up to 22 kW is used, which is connected through the CEE standard connector, or direct current from the Supercharging Option charging column. The electric motor allows you to recover energy in the process of work. Another electric tractor is presented by the California startup Monarch Tractor. The Monarch MK4 is a classic wheeled tractor. It is small in size and equipped with a 55 kW (70 hp) electric motor, which provides twice as much torque as a diesel engine of the same power. The large Japanese manufacturer of agricultural equipment Kubota presented the X tractor prototype, which involves the active implementation of robotics technologies in agriculture. The X tractor is equipped with an electric drive that provides energy from solar panels and a lithium-ion battery.

You can also note the following electric tractors: Kramer 5055e, Escorts Farmtrac 26E, Case 580 EV "Project Zeus", Rigitrac SKE50, JCB 525-60e, KhTZ-2511E, which are built according to the same principles as Fendt and John Deere.