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EVALUATION OF OCCUPATIONAL HAZARDS AND MEASURES TO REDUCE THEM TO MECHANIZED SUGAR BEET

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The reasons of accidents to mechanized harvesting sugar beet and systematized dangerous and harmful production factors that adversely affect workers. The measures to minimize production risks in the workplace mechanics and support staff.

Production risks sugar beets, mechanized harvesting, dangerous production factors, accidents.

Formulation of the problem. Large areas of fertile soil suitable for growing sugar beet on intensive technology, favorable climatic conditions, availability of qualified workers who have experience growing high and stable yields, availability of comprehensive mechanization open up great opportunities for growing sugar beet in Ukraine.

So in recent years, the problem is urgent recovery beet industry in Ukraine. You need to optimize the production of raw materials to produce beet sugar, to give due attention to the farm reliable and quality equipment for growing and harvesting of sugar beets, switch to wide-sowing sugar beet scheme using combined units for a combination of manufacturing operations and others.

However, the heads of households must pay particular attention to ensuring regulatory conditions in the mechanized cultivation and harvesting of sugar beets, because these processes almost all of last calendar year. The most dangerous are mechanized harvesting sugar beets.

Yes, October 7, 2006 at PE "Harvest" (p. Krasnosiltsi Zolochiv district, Lviv region) there was a fatal accident with a machine as a result of the seizure of his clothes movable drive shaft drive doochyschuvachiv during repairs in the field of self-propelled machine root crop KC-6B.

October 24, 2012 Utility worker SFG "Welfare" (p. Besidka Stavischanskaya Kyiv region) during

loading sugar beet came under the bucket loader, resulting in spinal-received spinal trauma from which later died.

In autumn 2013 an accident occurred in SGK "Belopol'skii" (Kozyatyn district of Vinnytsia region) during mechanical harvesting

sugar beets. When cleaning a fractured leg Beetroot hodman– his foot caught in the unwalled rotating parts.

– his foot caught in the unwalled rotating parts.

Analysis of recent research. The requirements of security and hygiene in production processes sugar beet regulates a number of regulations on health [1-4].Some outdated documents expired, is NAOP 2.1.10-2.05-81 OST 46.1.112-81 "Growing and harvesting sugar beets. Safety requirements ".

But these documents are developed without taking into account the risk-oriented approach, on which now has to be implemented OSH management system in agricultural enterprises[5-7]. Metodolohiya risk management on health and safety in the agricultural sector has not yet found sufficient scientific substantiation and practical implementation of the legislation. [8] So you need to organizedangerous and harmful production factors that adversely affect workers engaged in mechanized harvesting of sugar beets, and separate them according to the level of production risk[9].

The purpose of research.analyze dangerous and harmful production factors on sugar beet and propose measures to minimize production risks in the workplace.

research results.In autumn (during October-November) in agriculture increased risk of work characterized by mechanical processessugar beet. This is due to how common featuresagricultural production (seasonality and the related works urgency that leads to overstrain workers, workers stay in the open air or in the cabin, where no regulatory parameters provided microclimate, jobs at locations away from habitats workers; the need for manual labor with frequent changing working operations, etc.), and withadverse weather conditions in this period, method of mechanized processes involved unsatisfactory technical condition of agricultural units (Fig. 1).

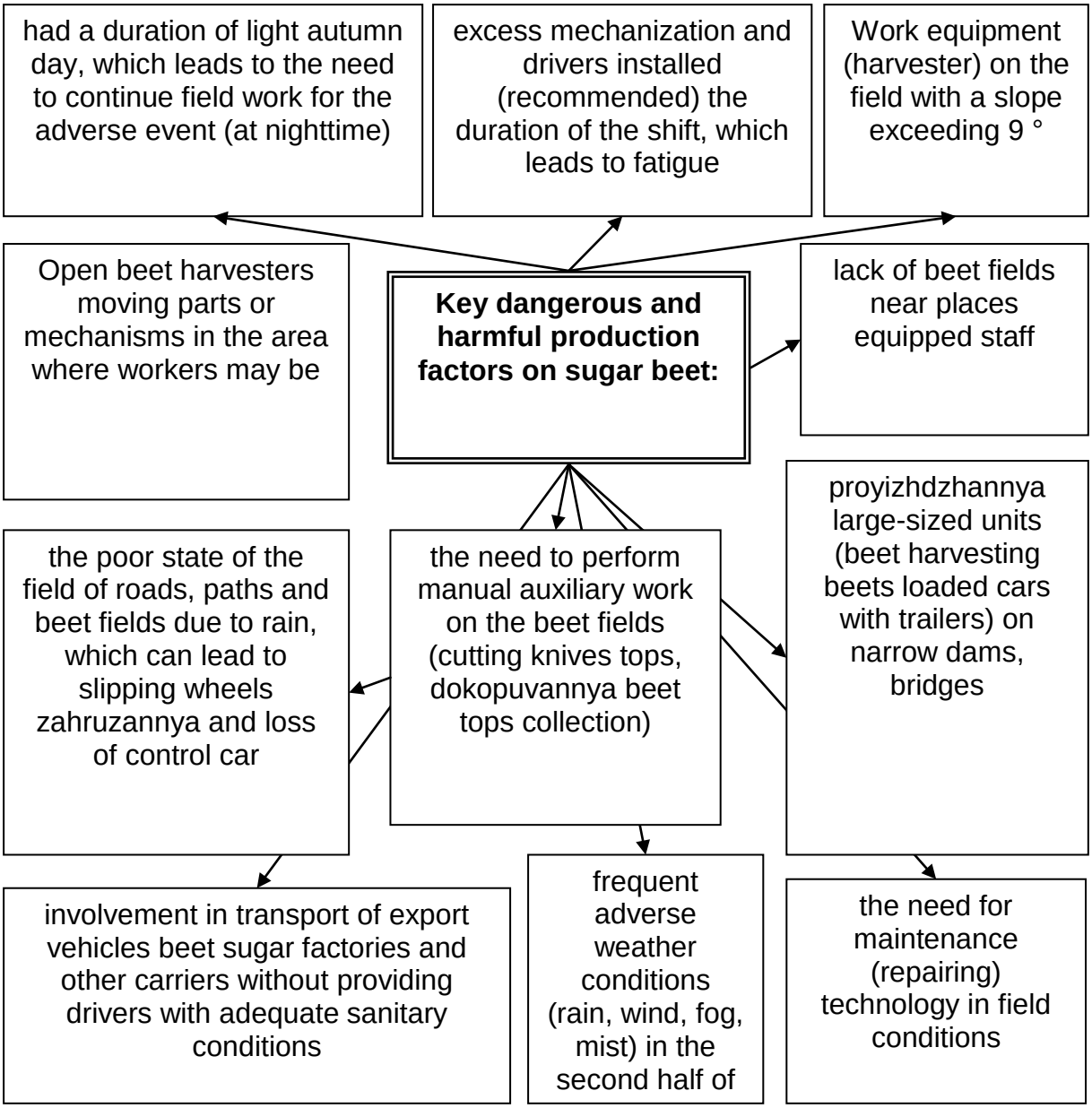

Fig. 1. Key dangerous and harmful production factors during harvesting sugar beets.

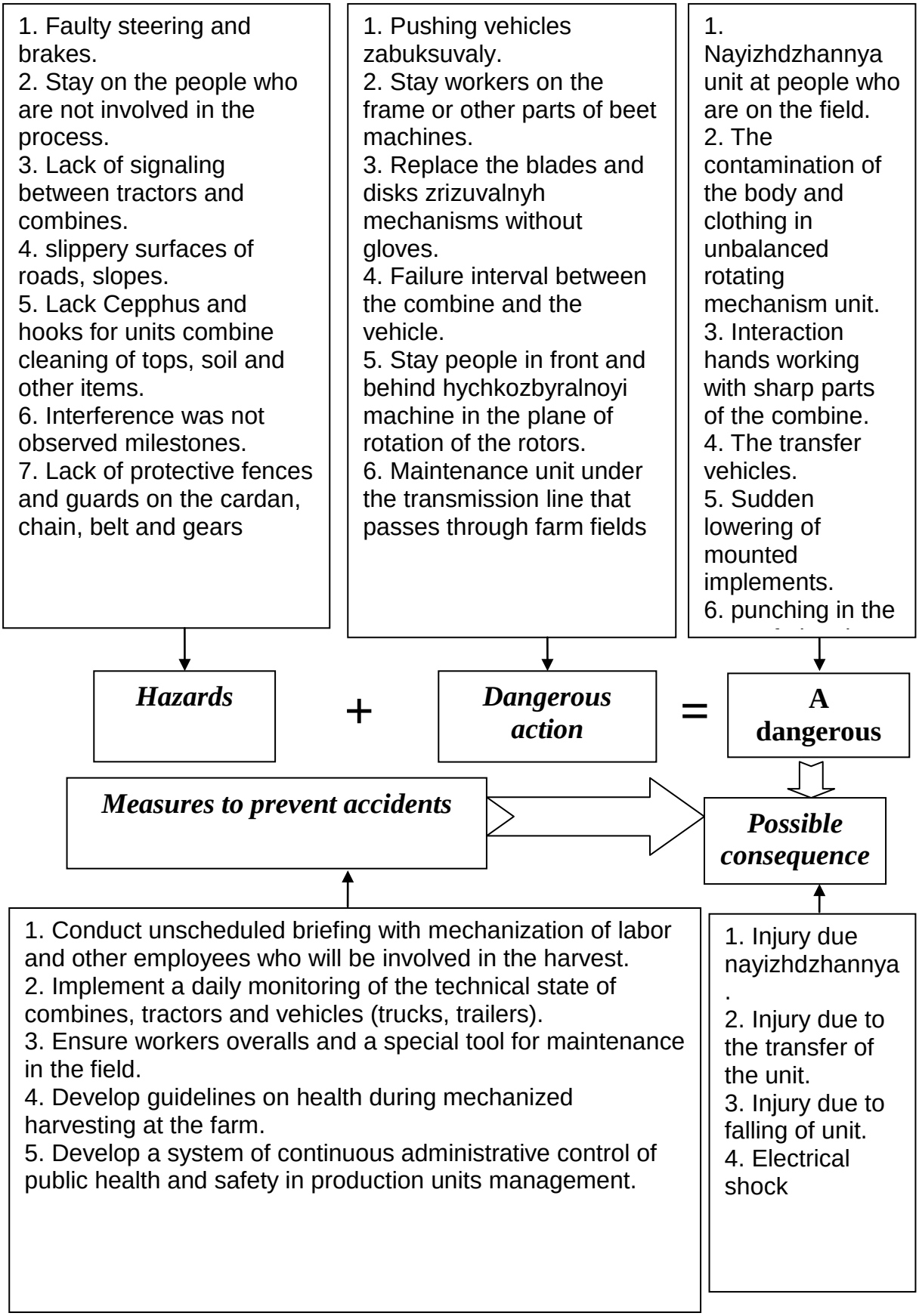

Fig. 2. Analysis of dangerous situations during mechanical harvesting sugar beets.

High levels of production risk of injury during mechanical harvesting beets due to: nayizhdzhannyam units (vehicles) for people who are on the field; hit parts of the body and clothing in unbalanced rotating mechanism unit (combine); hands touching hot parts of the operating unit; vehicle rollover on the slopes or on dangerous sections of roads; sudden lowering of mounted implements.

Analysis dangerous situations sugar beet as a combination of hazardous conditions and dangerous actions are presented in Fig. 2. Dangerous actions - such actions of the employee, contrary to evidence-based standards of professional conduct in the performance of production tasks. Dangerous actions largely determine employee statutory requirements violation of labor, mode of operation and other equipment. Because of the dangerous action of the employee enters the danger zone.

Dangerous conditions determine flaws construction machinery, processing equipment, the low level of production (low professional level of employees, insufficient training on health and safety). Dangerous conditions cause the machine due to their wear or structural deficiencies due to violations in the process of regulation of certain elements and more. Dangerous conditions of the production environment is the poor state of roads, fields, work areas, routes units, unfavorable weather conditions, traffic, and more.

Unsafe conditions and unsafe actions as random events combined together, could create a dangerous situation, which may be the result of injury or accident (depending on the nature of the sources of danger, employee behavior, the state of the manufacturing environment, etc.).

The most common violations of standards of safety in the mechanized production processes sugar beet are:

a) lack:

- warning signs and labels on existing hazards in mobile units and beet fields;
- labor protection instructions, datasheets and operating instructions beet harvesters, tractors, trucks and other equipment;
- protective devices (fences) on the moving parts of aggregates (combines);
- two-way communication units, which work execute two or more employees;
- protective devices in the heated parts of machinery and equipment;
- of collective and personal protective equipment, clothing, footwear or discrepancy specifications;
- means of protection against noise and vibration or inefficiency;

b) Fault:

- management mechanisms and brake systems beet combines, tractors and trucks;
- starting and locking devices;
- unsteady protective barriers at the workplace;
- electric, start-adjusting devices and other electrical equipment;
- Pull-coupling devices on mobile units;
- Ventilation and heating equipment in cockpits of combines, tractors and trucks or lack thereof;
- means of access to jobs and to places of service;
- tools, equipment, containers, etc;

c) the missed deadlines test lifting and transport mechanisms;

d) not fenced jobs at height (over 1.3 m);

e) insufficient illumination of workplaces;

e) zaharaschenist and the poor state of jobs and sites

e) ziskakuvannya workers from moving seed unit and lift it during movement.

To minimize production risks during mechanical harvesting beets can compliance with established safety requirements.

Work on sugar beet required in accordance with technological maps. Modes of technological processes sugar beet harvesting should ensure: consistency of machines (machine and tractor units, trucks); loading machines (machine and tractor units, trucks) according to their performance.

Not allowed:

- be on trucks, tractor trailers during downloading and transporting tops or sugar beet roots;
- push vehicles and beet units that zabuksuvaly or on the road;
- sit (stand) on the frame or other parts of beet cars during their work;
- be hychkozbyralnoyi front of and behind the car and the plane of rotation of the rotor;
- replace blades and discs zrizuvalnyh obrizuvalnyh and mechanisms to establish the gaps between the disks and archeologists gaps in conical bearings archeologists without gloves.

Secure the interval between harvesting unit (combine) and a vehicle that is loaded, should be at least 1.5-2.0 m. The remains of roots remaining after the vehicle is unloaded, it is necessary to remove a scraper or shovel with long handle, not rising in the body.

When you swing the speed of the unit should not exceed 4km / h, and on the slopes - 3 km / h.

Limit fields separated by ravines control groove of at least 10 meters from the edge.

Before driving beet harvester must:

- ensure that all guards and door beet harvester installed in position, rotating parts of the transmission is locked protective cover;

- to ensure proper operation of headlights, direction indicators, position lamps, in sufficient volume sound (sound level must be 8 dB above the noise outside the combine at a distance of 1 m from the cabin), no damage footboards and handrails;

- check the degree of tightening of bolts fastening wheel;

- test the effectiveness of the brake actuation system;

- ensure secure fixing of the established position of sitting in the cockpit beet harvester in the correct location mirrors.

It is forbidden to operate beet harvester in the case of serious violations tread wheels.

Conclusion. Heads of households should pay particular attention to ensuring regulatory conditions for mechanized harvesting sugar beets as works of heightened danger. Creation of dangerous situations sugar beet harvesting should be viewed as a combination of hazardous conditions and dangerous actions in view of the importance of industrial risks.

List of references

1. *NPAOP 01.0-1.01-12.* Terms of labor in agriculture / Approved by the Ministry of Emergencies of Ukraine of 11.26.2012 p. 1353 and the number registered with the Ministry of Justice of Ukraine 12.14.2012 p. For № 2075/22387 (Section V «Safety requirements while obtaining crop production").
2. *Methodical* Recommendations to prevent occupational injuries and diseases at work on foreign and domestic agricultural machinery on the basis of professional risk / Approved by the Ministry of Agrarian Policy and Food of Ukraine of 12.13.2012 p. Number 768.
3. *PI 2.0.00-081-1999.* Sample instruction on health and safety when performing manual work in crop / Approved by Ukraine Ministry of agricultural 15.12.1999 p. 368 number.
4. *PI 2.0.00-013-1999.* Sample instruction on health and safety for the driver of the tractor-agriculture / Ukraine approved order of Ministry of agricultural 3.5.1999 p. 110 number.
5. *V. Kaminsky* Conceptual approaches to construction safety management and risk at the agricultural enterprises / VF Kaminski, A. Voinalovych, VM Lapin, AA Gnatyuk // Bulletin of Agricultural Science. - 2014. - № 7. - S. 43-47.
6. *Voinalovych OV* Scientific principles for the development of the classifier occupational risks in mechanized agriculture / OV Voinalovych, OA Gnatyuk, VP Hunger // Mechanization and electrification of agriculture. - Vol. 97.- T. 2. - Glevaha, 2013. - S. 58-65.
7. *Voinalovych OV* Recent tasks of state supervision and control of labor in agriculture / OV Voinalovych, IN Podobed // Problems of safety in Ukraine. - K .: NNDIPBOP, 2011. - Vol. 21 - P. 137-143.
8. *Voinalovych OV* The concept of developing a system of tracking potential hazards in agriculture / OV Voinalovych, VA Sheremet, MO Zhelezniak // Scientific Bulletin of

National University of Life and Environmental Sciences of Ukraine. - K., 2010. - Vol. 144, ch. 2. - P. 100-106.
9. *Dubrovin VA* Professional risk to mechanized agriculture and trends in its reduction / VA Dubrovin, AV Voinalovych, OA Gnatyuk and others. // Scientific Bulletin of National University of Life and Environmental Sciences of Ukraine. - K., 2010. - Vol. 144, ch. 5 - p 13-19.

Proanalyzyrovanы reasons neschastnыh cases Other cleaning on mehanyzyrovannыh protsessah saharnoy beet and systematyzyrovanы and opasnыe vrednыe proyzvodstvennыe factors, kotoryya neblahopry-yatno vlyyayut for workers. Predlozhenы for activities of mynymyzatsyy proyzvodstvennыh risks to workers and place mehanyzatorov vspomo-hatelnыh workers.

Proyzvodstvennыe risk, Saharan beet, mehanyzyrovannaya Other cleaning, opasnыe proyzvodstvennыe factors, Neschastny Sluchai.

The causes of accidents in mechanized processes of harvesting of sugar beet are analyzed and dangerous and harmful production factors that adversely affect on workers are systematized. The measures to minimize production risks in workplace of mechanics and support staff are proposed.

Operational risks, sugar beet, mechanized cleaning, dangerous production factors, accidents.