ostatkov, as well as two types obosnovanno pryntsypyalno novyh dvuhъyarusnыh Cutting apparatov with parallelnoy and posledovatelnoy rabotoy nozhey.

Cutting apparatus, remennoy-sehmentnыy, chain-sehmentnыy, trosovoy-sehmentnыy, lentochnыy, rotatsyon-tion, dvuhъyarusnыy apparatus.

The analysis and design of workflow cutting apparatus for cutting plants without afflux - belt-segment, segment chain, cable-segment, and tape rotation, which results revealed that the best conditions for use in agricultural production meets the rotary cutter, but none of they do not meet the requirements for cutting and grinding and grinding crop residues and grounded fundamentally two types-new bunk cutting machines with parallel and sequential work knives.

Sutting machine belt-segment, chain-segment, cable-segment, belt, rotary, two-level unit.

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SOME ELEMENTS AND METHODS RESULTS dangerous process in the production of AIC

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We describe the technique for use boolean algebra operations to research potential hazards and hazardous processes on production agriculture, predict their possible consequences, and the choice of prompt action to prevent their occurrence.

The algebra of logic, adeylohiya potential hazards, hazardous situations dangerous processes of the danger to formula-ically safe process, accidents, injuries, forecasting, operational prevention*.*

Problem. Despite the existing state system in the regulatory framework of labor safety relevant services at all levels, special measures to improve the professional skills of the workers, the actual state of safety directly in production has not significantly improved. This is evidenced by numerous injuries the workers, various accidents and other events, indicating that the poor state of health and safety at different agricultural production. In addition to the existing state "concept of safety management" did not really reflect the basic scientific ideas

about effective at reducing the impact of these phenomena in different areas and the existing system in the agricultural sector

safety management, developed in accordance with the "Guidelines on construction safety management in the workplace" does not fulfill its main functions.

Perform the appropriate study of safety in different farms showed that employees of the relevant services have insufficient level of training, and most of the leaders of various enterprises do not have the latest knowledge on the possible creation of healthy and safe working conditions in the workplace. Under these conditions, it is impossible to believe that this problem is solved in the agricultural sector.

Analysis of recent research. We know that it is possible to solve the problem in question, but it is necessary to look for new scientific and theoretical principles to help you develop effective approaches to address it. To this end, we have not only studied the features of the problem, but sought and appropriate ways to address it. So we learned of the existence of such a science as adeylohiya, which means the science of safety (from the Greek. $\alpha\delta\varepsilon\iota\alpha$ - Security) [2], and studies that we have made and published in scientific sources, it belonged to the science [3-7]. Therefore, we have developed special techniques, according to which any machine-tractor unit erhatyvna seen as a system that has a structure consisting of "Man", "technical means" and "environment" [2, 4-6].

In scientific publications [4-7] proved that every element of that structure corresponding systems in certain circumstances may cause potential hazards.

It is proved that in certain circumstances the existing logical laws such events-hazard capable of forming complex-event situation, the content of which can be described by any dangerous process from its inception to the possible conclusion. This first dangerous situation, it becomes one or more ordinary events, hazards can create more complex event following situations. Yes, dangerous process can take up to emergence consequences [2, 4-6]. This emergency situation can lead to accidents and traumatic - the emergence respective injuries, etc. [5-7].

It should be noted that due to the techniques developed by us can not only explore phenomena that have occurred and led to undesirable consequences, and to predict the potential consequences. Thus, according to methods developed by us, you can explore any dangerous processes in order to determine the possible consequences of the identified potential hazards and take appropriate measures to prevent possible consequences.

It is known that the relevant scientists their judgments in science transmit and record using different narrative and affirmative sentences, the content of which can ask a question: they are true or false. Such sentences are called "statements" and became the object of study of mathematical logic [8]. Therefore, to study various potential hazards should be described as true statements [3-7].

The purpose of research. Improving scientific and theoretical foundations for the establishment of a new effective system of prompt detection, analysis and decision-emergency measures to prevent the possible consequences of numerous potential hazards in industries APC.

Results. In conducting our research, we pay attention to the expression that characterized false (dangerous) of certain employees and potential hazards sources were other elements of the structure erhatyvnyh systems [2, 5-7]. Thus we have proved that the identified potential hazards in their study can be described as true statements that are not contrary to the fundamental principles of logic algebra [8]. This is also evidenced by the numerous sources of international research on the use of boolean algebra to study the possibility of various disasters, severe accidents, etc. [1]. Therefore, we investigated the phenomenon we describe as true statements with a view to their subsequent formalization and application logic operations algebraic logic to determine the quantitative characteristics of the dangerous consequences. It is also necessary to predict the possible consequences of each identified potential hazards and take appropriate measures to prevent the occurrence of dangerous consequences.

Based on this, we each potentially dangerous phenomenon we describe as true statements with a view to their subsequent formalization and application logic operations algebraic logic to determine the quantitative characteristics of possible dangerous consequences. This will take into account only the true expression and with their help we will be able to describe the true or false we are studying complex phenomena in the form of accidents, injuries, workers, fires of various materials and products and so on. According researched and formulated expression we use in the study of patterns of generation of hazardous processes and their possible consequences.

This approach provides the ability to create an effective theory, which we use to develop a new method of modeling the operation of dangerous processes erhatyvnyh systems for industrial processes agriculture. The results will be the basis for developing effective operational system for permanent identification, expert analysis and decision-emergency measures to prevent the possible consequences. This is the main goal of our research.

To register and operational analysis of potential hazards before performing various processes, we have developed a special table, which recorded data identified potential hazards and their consequences from all sources in the target job.

The most important transaction of this analysis is to identify and describe possible dangerous situations with the definition of the relevant consequences.

In a separate column of this table indicates the possible consequence investigated dangerous process.

When describing complicated formulas true statements, we used well-known logical operations "disjunction" "conjunction" and "imlikatsiya" [8]. With these transactions, we will determine the quantitative characteristics of ordinary events, hazards, hazardous situations and appropriate consequences.

In contrast to the known method of research potential dangers for "reverse logic" we have developed a "method of direct logic" [2, 3-7]. After determining the content of each of the possible potential hazards in the operation of any tractor unit identified potential hazards should be described as true statements.

To perform these studies, we chose the latest sample collection unit for silage "MTZ-82 + Ros-2". Here we show that the said unit is not without some potential dangers. Appropriate dangerous process for our methods will be described in a logical formula for true statements:

"When you work specified crushed aggregate mass that goes into the body of the vehicle, evenly spread out over its area (A) and poorly compacted (B)Requiring manual operations (C)**.**To this end, compaction and leveling feed additional employee involved with hand tools (D)**.** When completing the crushed body weight to levels boards (E)**,**is working at the tailgate trailer (F)Not equipped with a special grid (G)**.** In the absence of bilateral alarm (I)**,** tractor abruptly moved from place (K)**,** lost his balance working (L) and fell to the ground with a body (N) from a height (S)**,**that led to injury (T)**.**

Analyzing formula possible dangerous process can be seen that it is composed of the aggregate ordinary: A, B, D, F, I, L and S events, hazards and complex events situations: C, E, G, K, N and T.

The set of ordinary events, hazards can be attributed to finite sets, because they have each other stochastically independent random events. For described as true statements formula can construct the corresponding logical model of the dangerous process (Fig. 1).

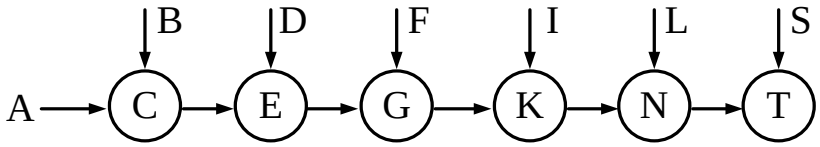

Fig. 1. The logical model identification dangerous process.

From the figure shows that the first dangerous condition studied process C it may be logical operation of intersection corresponding ordinary events, conditions A and B the transaction "conjunction", which is equivalent to a logical operation Intersection:

$$C = A \cap B \quad (1)$$

where $\cap$ - A symbol logical operation Intersection.

Under the second state of the system (E) may have formed by logical operation "implication": "If A and B and D Then E". Then the corresponding formula would look like this:

$$E = A \cap B \cap D . \quad (2)$$

All subsequent events, the situation also created a similar operation. This means that a dangerous process can happen if a real production environment will be the potential for each of these hazardous conditions G, K, N and T. This can be shown by the corresponding formulas (3 - 5):

$$G = A \cap B \cap D \cap F \quad (3)$$

$$K = A \cap B \cap D \cap F \cap I \quad (4)$$

$$N = A \cap B \cap D \cap F \cap I \cap L \text{ And} \quad (5)$$

Last event-consequence T arise if events occur all together A, B, D, F, I, L and S. According event-consequence T determined by the formula:

$$T = A \cap B \cap D \cap F \cap I \cap L \cap S . \quad (6)$$

Based on the fact that all events are defined by the formula (5) is random, the probability of event-consequence T can be determined by the probabilities of each of the ordinary-hazards events as follows:

$$P_T = P_A \cdot P_B \cdot P_D \cdot P_F \cdot P_I \cdot P_L \cdot P_S . \quad (7)$$

Equation (7) is important when choosing a measure to prevent a possible outcome (event T). If any of the events dangers referred to in (7) does not take place in a timely adoption of the measure, the corresponding result, event T will not happen. Patient technical means, the pre-selected event can characterize improving the design of this machine. This will prevent occurrence of incidents, hazards A and B (Or one of them) that can confirm the following formula.

$$P_T = 0 \cdot 0 \cdot P_D \cdot P_F \cdot P_I \cdot P_L \cdot P_S = 0 . \quad (8)$$

So under these conditions dangerous consequence will arise. This means that improving the design sylosoprovodu appropriate forage

machines eliminate the need to attract additional workers to perform the appropriate process.

The results of our numerical study of the potential hazards of the various manufacturing operations and the use of different samples of domestic and foreign technology development under the conditions of the basis of operational safety management systems for various manufacturing operations, including testing of new equipment agricultural purposes, can effectively influence the solution this problem.

Conclusions

1. developed our methods and results of research potential hazards in industries AIC can be the basis of developing a new more effective prevention of accidents and injuries in various industrial processes APC.

2. The results of research potential hazards and their potential consequences can be the basis of a new concept of development in terms of agricultural production of safe and harmless conditions.

3. To increase knowledge workers labor protection services at different levels should be included in the appropriate manuals and books on health basic knowledge of the science of security industry workers - Agricultural adeylohiyi.

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Opysanы elements of application techniques for logic operations alhebrы Studies potentsyalnыh hazards and hazardous processes in production agriculture, prediction s vozmozhnыh consequences, Choice and Adoption operatyvnыh meropryyatyy by s preduprezhdenyyu and occurrence.

The algebra of logic, adeylohyya, potentsyalnые hazards, opasnые situation, opasnые Processes formula opasnoho process, accident, travmы, prediction, promptly predotvraschenye.

The techniques for applying of Logic Algebra operations for studying the potential hazards and dangerous processes on AIC production, their possible consequences forecasting, option and approval of operational measures to prevent their occurrence have been described.

Logic Algebra, adeylohiya, potential hazards, dangerous situations, dangerous processes, dangerous processes formula, accidents, injuries, forecasting, operational prevention.