4. NN Bogolyubov Asymptotycheskye methods in the theory of nonlinear oscillations / N.N.Boholyubov, YA Mytropolskiy. - M .: Fyzmathyz, 1963. - 410 p.
5. Kolovskyy MZ Theory of nonlinear systems vybrozaschytnыh / MZ Kolovskyy. - M .: Nauka, 1966. - 318 p.
6. Hayashi T. Nonlinear fluctuations in fyzycheskyh systems / T. Hayashi. - M .: Mir, 1968. - 432 p.
7. Blehman II Sync Dynamic Systems / II Blehman. - M .: Nauka, 1971. - 894 p.
8. Hanyev RF Fluctuations of solid bodies / RF Hanyev, VA Kononenko. - M .: Nauka, 1976. - 432 p.
9. Neimark YI Method tochechnыh otobrazhenyy a theory of non-linear oscillations / YI Neimark. - M .: Nauka, 1972. - 472s.
10. Blehman II Applied Mathematics: the subject, Logic, Features approaches / II Blehman, AD Myshkis, JG Panovko. - K .: Naukova Dumka, 1976. - 269 p.
11. Weitz VL Dynamics mashynnыh agregatov / VL Weitz. - L .: Mashinostroenie, 1969. - 368 p.
12. VA Kononenko Fluctuations of ohranychennыm with excitation / *VA Kononenko.* - M .: Nauka, 1964. - 254 p.
13. GI Melnikov Dynamics of nonlinear mechanical systems and e`lektromehanicheskij / GI Melnikov. - L .: Mashinostroenie, 1975. - 200 p.
14. KV Frolov Fluctuations machines with capacity of ohranychennoy energy sources and parameters peremennыmy / KV Frolov. - In .: Nonlinear Processes perehodnыe and fluctuations in machines. - M .: Nauka, 1972. - P. 2-17.
15. Weitz VL Dynamics mashynnыh agregatov with combustion engines vnutrenneho / VL Weitz, AE Kochur. - L .: Mashinostroenie, 1976. - 384 p.
16. Vulfson II Nonlinear dynamics problem machines / II Vulfson, *MZ Kolovskyy*. - L .: Mashinostroenie, 1968. - 382 p.

The following physical and mehanycheskaya model kotoraja yspolzovana as is information and Analytical Provision vybroudarnыh mechanical CAD systems. Predlozhennыy usovershenstvovannыy method of analysis and sub superharmonychnyh oscillations.

Physical and mehanycheskoe Modeling, Mathematical Provision, subharmonychny and superharmonychny fluctuations.

Physical and mechanical model for the informational and analytic supply of SAPR of vibro-impact (substantially nonlinear) mechanical systems is proposed. The improved method for the analysis of sub- and super-harmonic oscillations is offered as well.

Physical and mechanical modeling, mathematical supply, sub- and super harmonic oscillations.

UDC 665.3

ANALYSIS TECHNOLOGY production of vegetable oils

MY Pavlenko, applicant

The analysis technologies for the production of vegetable oils.
Vegetable oil, technology, grain products

Problem. Get vegetable oil today can be industrial (classical) and agriculture (farming) technology.

Industrial production technology consists of the following stages: purification of grain from impurity, drying, preparing for oil production, reception and treatment of oil supply, refining, and re vinterizatsiya purification of the final product.

Agroindustrial technology for vegetable oil includes the following production steps: receiving grain cleaning of various impurities, drying, obtaining oil supply, cleaning of crude oil vinterizatsiyi and re-treatment received oil.

However, at present, not fully substantiated location and sequence of processes that will ensure efficient production of vegetable oils in terms of facilities.

Analysis of recent research. The study involved the production of vegetable oil: Akayev TK [1] Beloborodov V. [2] Goncharov GI [3] Nagornov SA [5], Which described the technological steps for oil products; Harutyunyan NS, described the scientific and technological bases of industrial processes refining, hydrogenation, hydrolysis of fats [6]; R. O'Brien described the contents, properties and ways of using oil [4]; Tyutyunnikov BN [7,8] And Feinberg EE [9] Studied different methods of refining oils and oils; V. Shcherbakov10].

The purpose of research. To prove technological schemes of vegetable oils in terms of facilities.

Results. The difference between the industrial (Fig. 1) and agriculture (Fig. 2) technology seen since the second technology - a technology first reduced to the basic process.

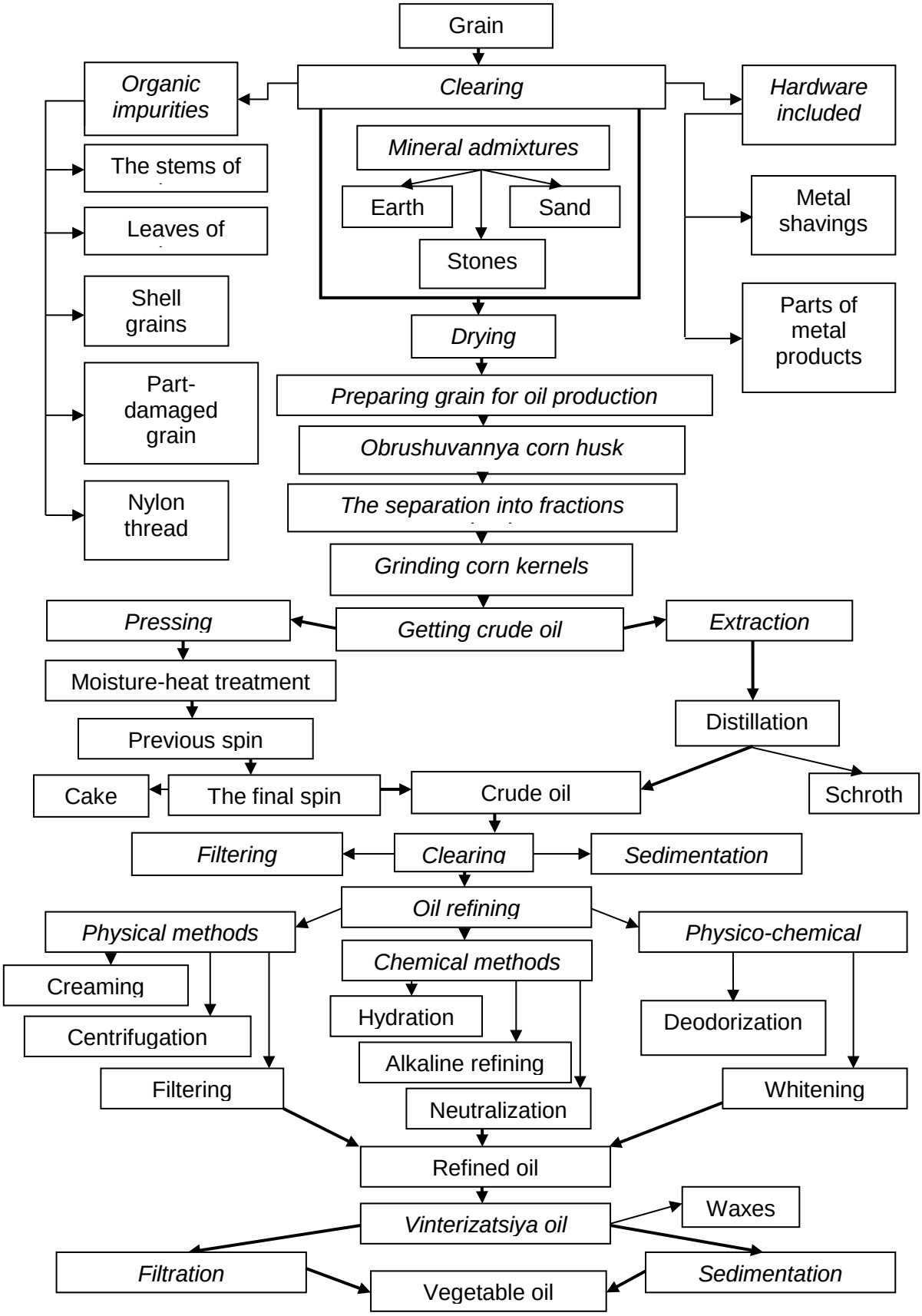

Fig. 1. Scheme of industrial production of vegetable oil.

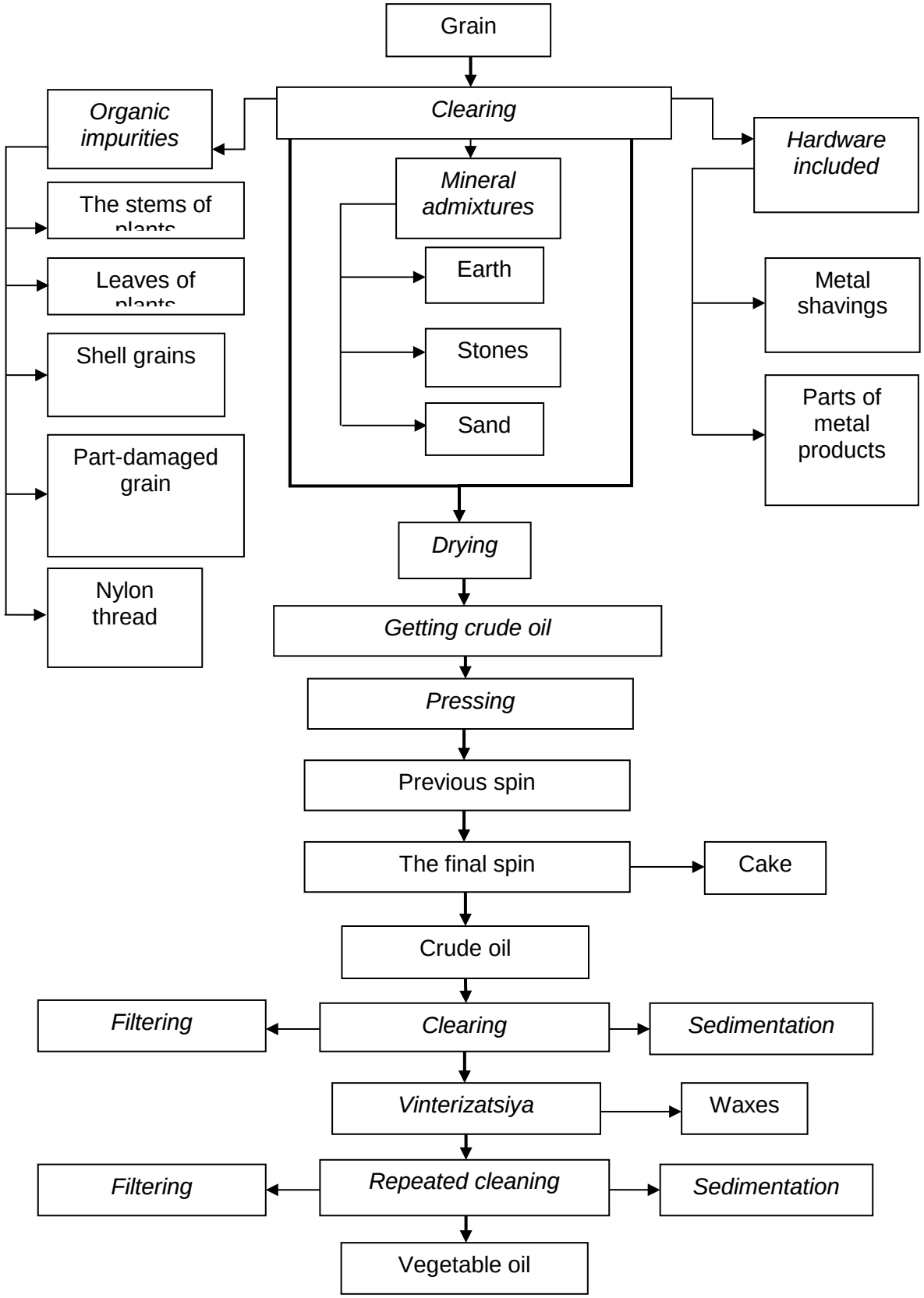

Fig. 2.Scheme agroindustrial production of vegetable oil.

Industrial technology of vegetable oil is traditionally used in oil and fat plants. Compared to agriculture, industrial technology has the

following advantages: high quality of products; longer life and oil products produced from it; use extraction method to get more out of crude oil supply.

The disadvantages of industrial technology include: higher cost of electricity; lower productivity; habarytnist equipment for refining; output useful to use substances during refining; having lots of cake as a by-product in the production of vegetable oil.

Agroindustrial technology of vegetable oils used in farming. In no agro technology: preparation of grain to oil production, oil production by extraction, wet-heat treatment to obtain crude oil by pressing and refining. Fewer steps for agro-industrial technology enables fast without using additional space for processing and is available at a price of producing vegetable oil suitable for food use and maintenance to recycling in diesel biofuel.

But the reduction process stages results in lower quality vegetable oil because it contains free fatty acids, phospholipids, taste, smell and dark color of the oil supply, the expiration date is lower than obtained by industrial technology.

Conclusion. To date, there is a need for transition from industrial technology in agroindustrial production technology of vegetable oil which meet the needs of the economy for the implementation and use of products and processing for diesel biofuel.

References

1. *Akaeva TK*. Fundamentals of chemistry and technology of obtaining and Converting fats.
Part 1: Technology rastytelnыh obtain oils: Textbook. posobye / TK Akaeva, SN Petrova. - Ivanovo: GOU VPO Ivan. state. hym.-techn. University, 2007. - 124 p.
2. *VV Beloborodov*. Basic Processes of production rastytelnыh oils / VV Beloborodov. - Moscow: Pyschevaya promyshlenost, 1966. - 478 p.
3. *Goncharov H.Y*. Technology and equipment for production pyschevыh fats / H.Y.Honcharov, K. A.A.Busha.-: Vintage, 1991.- 86 p.
4. *Fats* and oil. The production, composition and properties, Application / R. O'Brien: Per. with the English. 2nd ed. VD Shirokov, DA Babeykynoy, NS Selyvanovoy, *NV Mahdы*. - SPb .: profession, 2007. - 752 p.
5. *Technique* technology and production and Converting rastytelnыh oils: uchebnoe posobye / SA Nagornov, DS Dvoretskyy, SV Romantsova, VP Tarov. - Tambov: Izd GOU VPO THTU, 2010. - p. 5-48.
6. *Technology* Converting fats. Harutyunyan NS, Arysheva EA, Yanov LI, Zakharov II, Melamud NL MM: Agropromizdat, 1985. - 368 p.
7. Tyutyunnykov BN Technology fats. Volume 1 / BN Tyutyunnykov, Markman AL - Moscow: Snabtehyzdat, 1932. - 318 p.
8. *Tyutyunnykov B.N*. Technology Converting fats / BN Tyutyunnykov, *PV Naumenko, IM Tovbyn, GG Fanyev.* - Moscow: Pyschevaya promyshlenost, 1970. - p. 29-41.

9. *Feinberg E.E*. Technological Designing zhyropererabatыvayuschyh enterprises (rafynatsyya hydrohenyzatsyya and fats) / EE Feinberg, *IM Tovbyn, AV Lugovoi.* - Moscow: Lёhkaya and pyschevaya promyshlenost, 1983. - 416 p.
10. *Shcherbakov VH*. Technology rastytelnыh obtain oil / VG Shcherbakov. - Moscow: Kolos, 1992. - 206 p.

Conducted analysis technology IZ-production Rusty lnыh oils.
Rastytelnoe oil, TECHNOLOGY, grain products.

The analysis of technologies is conducted from the production of vegetable butters.
Vegetable butter, technology, grain, products.

UDC 620.95

FUEL AND ENVIRONMENTAL INDICATORS OF USE biodiesel

VV Chub, applicant

The results of the analysis of regulatory characteristics and environmental performance of diesel engine D-65N tractors PMZ-6 AKL using diesel fuel, biodiesel based on methyl esters of fatty acids of rapeseed oil and biodiesel use heat to vporskom fuel into the engine cylinder.
Environmental indicators diesel engine, diesel fuel, diesel biofuel heating fuel.

Problem. Increased energy needs and the depletion of mineral fuels, encourage the search for alternatives and the increasing use of motor fuels derived from biological materials. Ukraine belongs can meet their needs from domestic oil production by 10-12% and natural gas by a third, which poses a threat to energy security.

Analysis of sales canola and wheat to buy 1 ton of diesel fuel with the profits from the sale shows that in 2000 had to grow up and realize 27.5 tons of rape or 14 tons of wheat in 2003, 4.9 tons of rape or 9 tons of wheat in 2005 - 13.8 tons of rape or 204 tons of wheat in 2011, 14.1 tons of rape or 54 tons of wheat [1], since the introduction of agricultural production technologies using renewable fuel produced from domestic raw materials is one of the areas providing not only food security, but also can greatly affect the autonomy of its own energy and can create a