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### **Use of supervision in vocationally oriented (dual) training of veterinary professionals and students**

*Abstract:* The agrarian sectors of the Ukrainian economy have been rapidly developing in recent years, which entailed shortage of staff in crop and animal husbandry. The growth of agribusiness has highlighted the gap between business needs and agrarian education. The review of reference literature shows that over the past 30 years, there has been an increase in counseling, supervision and vocational guidance in various fields of production. The research purpose was to study the implementation and use of different forms of dual education for veterinary specialists in Ukraine. The article presents the results of the study of vocationally oriented training in Ukraine applied in teaching and advanced training of students and veterinary specialists. The pedagogical approach related to introducing elements of technological and pedagogical supervision into practical classes, which was developed based on our own experience in animal breeding, significantly optimizes the acquisition of basic diagnostic and technological techniques used in modern biotechnology of cattle reproduction. The authors conclude that integration into the European educational space requires studying international experience in application of dual education at agrarian educational institutions and Ukrainian methodological works, which will improve vocationally oriented education. Technological and pedagogical support (supervision) is an efficient way of practical training of veterinary students and advanced training of practitioners.

*Keywords:* dual education, technological and pedagogical supervision, vocationally oriented training, biotechnology of cattle reproduction.



### **Introduction**

The agrarian sectors of the Ukrainian economy have been rapidly developing in recent years, which entailed shortage of staff in crop and animal husbandry. The growth of agribusiness has

highlighted the gap between business needs and agrarian education (*Belenkov, 2019; Order of the Cabinet of Ministers of Ukraine No. 1437-r, Shebanin, 2018*).

The review of reference literature shows that over the past 30 years, there has been an increase in counseling, supervision and vocational guidance in various fields of production (*Order of the Cabinet of Ministers of Ukraine No. 1437-r, Oleksin & Yakubovska, 2018; Sinitsina, 2015; Shebanin, 2018; Hawkins et al., 2006:98-113*). Most authors are criticizing traditional forms of teaching, as they aim at conveying ready-made information to students in the form of common truth (*Yakovlev & Yakovleva, 2015; Hawkins et al., 2006:98-113*). The key prerequisite for upgrading contemporary agrarian production is the most efficient and fast training of highly qualified specialists of both broad and narrow specialization.

It should note that it is necessary to make the content of the proposed dual education concept more concrete in order to ensure intensification in different branches of agricultural production (*Order of the Cabinet of Ministers of Ukraine No. 1437-r*). Supervision is one of the basic components of vocationally oriented training based on dual principles, and it has various forms, namely: informal counseling, practical workshops, discussion of challenges, webinars, demonstration of best practice, trainings, master classes, methodological council, etc.

Supervision in pedagogical education is developing because new educational standards appear, teaching standard has been approved, teaching of trainers is being aligned with drastically changing working conditions in various fields, in particular in the agricultural sector. Innovations, which are being fast introduced in the organizational and technological processes of agrarian production, require new methods to support trainers who train future specialists in subjects related to high-tech modern crop or animal husbandry [*Order of the Cabinet of Ministers of Ukraine No. 1437-r; Sinitsina, 2015; Shebanin, 2018*].

Taking into consideration that different forms of dual education are actively deployed in countries with developed agriculture where the leading role has belonged to Germany in the last 15 years, it is worth noting that dual education is less spread in Ukraine. Thus, it is necessary to study comprehensively supervision as an element of individual dual education.

Since vocationally oriented practical classes have been used in Ukraine in the past 20 years, the research purpose was to study the implementation and use of different forms of dual education for veterinary specialists in Ukraine.

A number of experimental, practical and analytical tasks were performed in order to achieve this goal, namely:

- reference literature on the development of dual education in different countries was reviewed;
- the results of the implementation of vocationally-oriented training and advanced retraining programs for animal and veterinary specialists, involving principles of dual education and supervision based on our own experience of work in state postgraduate education institutions and at private enterprise PJSC “Poltavaplemservis” have been analyzed;
- a methodological model of further development of vocationally oriented practical classes in accordance with update requirements of dual education concept adopted in Ukraine was developed.

## **Materials and methods of research**

Statistical and epistemological methods and structural comparative analysis were applied. The results of own previous experience of delivering vocationally oriented trainings in the chain of state educational institutions for advanced training of managers and specialists of agroindustrial complex at Donetsk State Agrarian Collage (Donetsk regional school of agriculture management) were analyzed. It was done in order to develop a methodological approach, which will allow introducing into the training program for students of animal and veterinary faculty of OSAU the methods of organizing practical classes using different forms of supervision as an effective element of dual training as examples, first, (*Sidashova, 1999*). The educational activities of the Embryo Transplantation Laboratory on the basis of PJSC “Poltavaplemservice” was considered as the next stage of development of consulting aimed at on-the-job retraining of specialists – biotechnologists (*Volosbchuk et al., 2012; Kozelska, 2014; Sidashova, 2018; Sidashova & Saglo, 2014; Sidashova, 2013*).

We conducted an anonymous express survey, the results of which are summarized for further analysis, in order to find out the current state of affairs concerning training of young animal and veterinary professionals working at animal farms of different form of ownership.

The scientific novelty of our research was to present a comprehensive analysis and synthesis of the data on the development of dual agricultural education from a chronological, technological, organizational and pedagogical point of view.

### **Results of the research**

Examples of the organization of vocational training for animal and veterinary specialists on effective reproduction of cows and heifers in farms of different form of ownership were presented at a number of thematic contests held among postgraduate agricultural and advanced training institutions in Donetsk region in 1998-2001 (DOSH agriculture), which was presented in publications (*Sidashova, 1999*). Targeted modules-trainings, practical trainings by the method of “immersion in the production process”, visualization of images of trans-rectal examination of reproductive organs of cattle were developed in order to increase skills in biotechnology of artificial insemination of cows and heifers, which considerably built the capacity of the trainees. However, the outdated organizational structure of the system of postgraduate training for managers and professionals of agroindustrial complexes did not allow taking full advantage of all opportunities provided by innovative methodological approach to training professionals who are familiar with modern animal husbandry issues (*Table 1*).

According to the survey, about 60% of practitioners who have already had experience of working in dairy farms and companies are familiar with artificial insemination, but the respondents were not aware of the biotechnology of embryo transplantation, which is now a routine operation in most livestock in developed countries.

Within the framework of educational activities of the Laboratory of Embryo Transplantation of PJSC Poltavaplemservis (2011-13) various forms of vocationally oriented training using dual education principles, technological and instructional support (supervision), preparation of educational-technological modules, etc. were improved (*Kozelska, 2014; Sidashova, 2018; Sidashova & Saglo, 2014; Sidashova, 2013*). Today the summarized chart shown in Figure 1 also is still used as a model of organization of vocational training.

It should note that pedagogical supervision is the most efficient way of training interns or students how to perform manual operations related to diagnostics of the physiological condition of animals. Individual technological guidance in teaching trans-rectal palpation and making a differential diagnostic of the reproductive organs of animals is particularly important. Method of innovative technique of visualization of palpatory diagnostics data on ovaries of cattle have passed successful approbation in several leading industrial dairy companies in Ukraine (*Fig. 2 and 3*). Such practical training will become a solid basis for mastering diagnostic techniques using ultrasound scanners of different design.

In the field of education, the concept of “supervision” is now interpreted as a process of pedagogical support provided to specialists who have practical experience, but who need professional guidance and support (*Yakovlev & Yakovleva, 2015; Yakovlev & Yakovleva, 2015:10*). According to Russian authors, pedagogical supervision is a dialogic process based on interpersonal equality in the dialogue in order to jointly develop own unique knowledge in a particular educational situation or production (*Oleksin & Yakubovska, 2018*). Supervision in modern intensive educational process is considered an effective way of preventing emotional burnout of specialists who work intensively with people (*Yakovlev & Yakovleva, 2015; Hawkins et al., 2006:98-113*).

Based on the materials of trainings at PJSC “Poltavaplemservis”, a number of scientific publications were made, and the results of practical application of methodological developments were presented at scientific conferences (*Voloshchuk et al., 2012; Sidashova, 2018; Sidashova & Saglo, 2014; Sidashova, 2013*). The introduction of vocationally oriented seminars for training and retraining of veterinary specialists on diagnostics skills has been further developed at Odesa State Agrarian University.

### Conclusions

Integration into the European educational space requires studying international experience in application of dual education at agrarian educational institutions and Ukrainian methodological works, which will improve vocationally oriented education. Technological and pedagogical support (supervision) is an efficient way of practical training of veterinary students and advanced training of practitioners.



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## Appendix

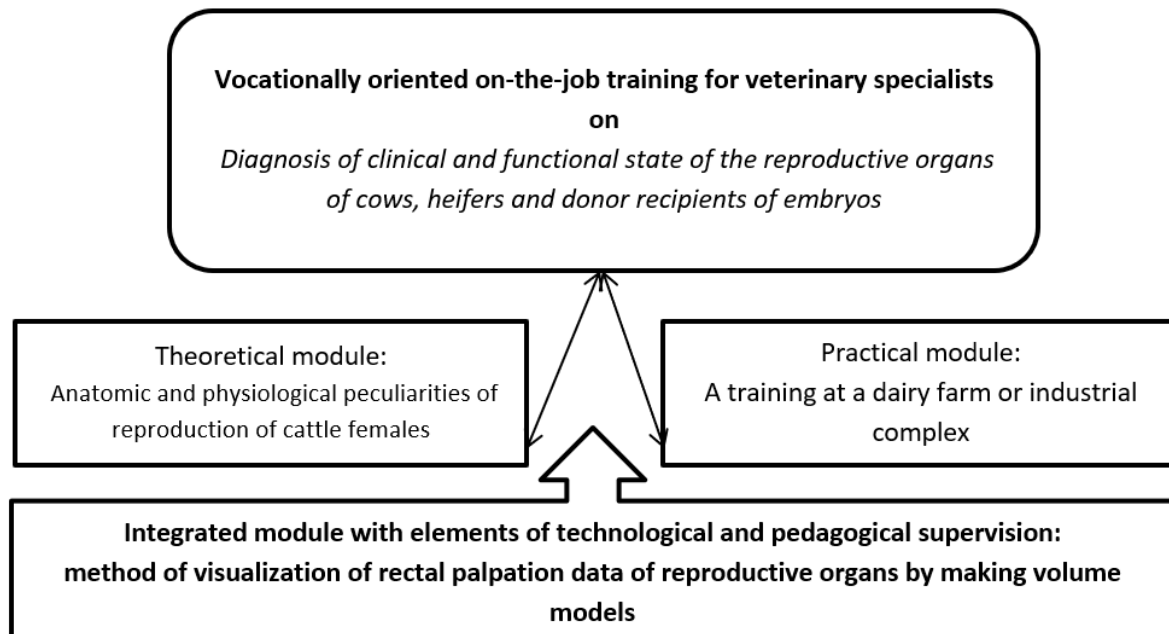


Figure 1. Summarized organizational chart of dual education in the form of theoretical and practical modules for post-graduate training and re-training of veterinary specialists



Figures 2 and 3. Training for animal and veterinary professionals (vet doctors, artificial insemination technicians) at a dairy farm PE Agroecology in Poltava region: left – studying the anatomy of reproductive organs of a slaughtered heifer; right – visualization of rectal diagnostics data on cows' ovaries by making a 3-D model. The photo is taken from the archive of the Laboratory of Embryo Transplantation at Poltavaplemservis 2011 (Kozelska, 2014).

Table 1. Results of the survey among young veterinary professionals at farms with different form of ownership (n=119)

Question	Total of respondents* (100%)	Answers, in %	
		Yes	No
1. Can you use methods of recto-cervical artificial insemination of cows and heifers?	119	59,66	40,34
2. Can you use methods of transcervical (non-surgical) transplantation of frozen-thawed cattle embryos?	87	0,00	0,00

Note \* – vet doctors, paraveterinary workers, production technicians, livestock managers, artificial insemination technicians.