

QUESTIONNAIRE

(*) – mandatory fields

Details about organisation	
* Organization name	Pig-Breeding Institute named after O.V.Kvasnytskyj of Ukrainian Academy of Agrarian Sciences
Organization acronym	IC YAAH (PBI-UA)
* Organization Activity Type (RES - Research, HE - University, SME - Small and Medium Enterprise, IND - Industry, OTH - Other)	RES
* Keywords of main research areas	Pig-breeding, selection, feeding, physiology of reproduction, genetics, technology of pig management
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* Description of organization and its research achievements for the last five years (~ 5000 signs)
<p>The Pig-breeding Institute (Poltava) was founded as the All- Union scientific and research pig- breeding Institute by the All- Union Academy of Agricultural sciences in August, 1930.</p> <p>In 1944 it was renamed Poltava scientific and research pig- breeding Institute. Since 1993 the Institute is subordinated to the Ukrainian Academy of Agrarian Sciences (UAAS). In 2000 the Institute was named after academician O.V. Kvasnitsky. Here headed by academician O.V. Kvasnitsky fundamental experiments were carried out on pig digestion physiology study, the results of which became a theoretical basis for further development of the optimum nutrition norms. At the same time problems of reproduction, pig feeds production, feeding and pig management were solved.</p> <p><i>Main Directions of the Institute's activity</i></p> <ul style="list-style-type: none"> ▪ improvement of the existing and creation of new pig breeds, types, lines an their crosses; ▪ search of new physiological, genetic and biochemical methods for pig productivity improvement; ▪ development of the system of rational feeding of animals belonging to different age and production groups, mixed fodder recipes and premixes; ▪ development and improvement of porcine production progressive technologies with application of computer technologies, up- to- date economic and organizational

branch management methods;

- studies, propaganda and launching into production scientific developments and advanced experience.

Scientific achievements

During the last decades the Institute has accomplished a number of the research works possessing considerable theoretical and practical importance for farms different in size and property forms.

The basic of them are:

- the Poltava meaty pig type created on the crossbred basis (1974, B.V. Bankovsky, F.K.Pochernyaev, V.P. Rybalko and others);

- the Poltava meaty breed (PM) approved by the Ukrainian Ministry of Agriculture in 1993 (B. V. Bankovsky, V. P. Rybalko, L.G.Peretyatko, N.M.Sereda) which is characterized by high reproductive and fattening qualities;

- the Ukrainian meaty breed (UM) approved in 1993, (B.V. Bankovsky, S.V. Akimov, I.B. Bankovska, M.M. Borysenko, and others). Within the breed three types exist: the Poltava central, the Kharkov and the Askania types. They are recommended for application as a father form in breedline hybridization in the zones of the country;

- three interbreed pig types within the Large White breed: ULW-1 (1985) possessing high reproductive properties and ULW-II (1994) possessing considerable fattening and meat properties, Dnirov farm mother type “Dniprovsky” (1999), the types were created under M. D. Berezovsky’s methodical guidance;

- the red- belted meaty pigs specialized line created on the basis of seven breeds under the guidance of V.P. Rybalko in 1994 . At crossing with the planned sows this line’s boars ensure the heterosis effect within the limit of 5 –15%;

- selection- technological porcine production system for different regions of Ukraine (1991) which jointed the pedigree and production farms’ work with wide application of the pure breeding, cross- breeding, hybridization and artificial insemination methods.

The Institute scientists’ activity includes a number of other achievements both in this country and abroad.

- principally surpassing the modern analogues the new Poltava pig embryo-transplantation method (M.A. Martynenko, P.V. Denisyuk, V.O. Lobchenko) and boars sperm deep freezing technology (V. F. Kovalenko) were worked out;

- the reproduction and pig artificial insemination technology was created and is being continuously improved. In particular the following methods are proposed and launched into production: the fractional method of pig artificial insemination together with the correspondent equipment both for the fractional and non-fractional methods; the sow’s reproductive ability renovation method; the rational regime of detecting sows in oestrus as well as their insemination; methods of farrows synchronization, etc. (O.V. Kvasnitsky, V.F. Kovalenko);

- norms and rations of feeding pigs belonging to different age and production groups , recipes of combined feeds and their premixes (M.A. Kovalenko, I.S. Tronchuk, M.T. Nozdrin, A.A.Polishchuk, L.I.Yatsenko, S. O. Semyonov and others) were proposed;

- the rational porcine production farm module for different categories of enterprises was developed; the state norms for pig- farm construction projects were determined on the basis of the technological and zoohygienic investigations in the sphere of different age and production groups pig- keeping (I.I. Zabolotny, V. F. Kovalenko, O. F. Saglo, V. Z. Folomeev and others).

The Institute proposes:

- methodical recommendations for researches in pig- breeding;
- the Poltava meaty and the Ukrainian meaty breed pigs;
- new interbreed pig types within the Large White breed;
- new red- belted meaty pigs specialized line;
- selection- technological porcine production system;
- the sow's reproductive ability renovation method;
- the rational regime of detecting sows in oestrus as well as their artificial insemination technology;
- programs and perspective plans of selection and pedigree work on breeding herd and pig populations;
- development of full value combined feeds recipes for pigs belonging to different age and production groups;
- the porcine production technological bases;
- organization of pedigree farms for pigs belonging to different genotypes;
- boars' and sows' estimation as to their genotype and phenotype;
- immunological control of pedigree youngsters lineage;
- service in porcine production farm organization ;
- the selection process control automatized system;
- methodical consultations on the problems of selection, breeding herd reproduction, fattening and pig management;
- conduct of the science-practical seminars and conferences on the problems of pig- breeding.

	Contact Information
* Contact person (first name, family name)	Pavlo Denysyuk, PhD
* Department / Laboratory	Laboratory of Physiology (there is not department)
* Position	Senior researcher
* Qualification and research experience	Physiology. In vitro embryo production: in vitro maturation of pig oocytes; in vitro fertilization; in vitro culture of pig embryos. Nonsurgical pig embryo transfer.
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International co-operation / Participation in EU RTD programmes or other bilateral / multilateral actions

INTAS, TACIS, TEMPUS, COST, EUREKA, other RTD programmes (please specify programme/s, project title/s and year/s)

I have been worked for three month as visitor exchanger in Animal Science Research

Centre 159 in Laboratory of doctor Billy Nile Day, University of Columbia-Missouri, in 1991.
I have been occupied there by pig embryo production in vitro.

	* Please, use "X" to indicate the scientific area/s of your potential project
CHEMISTRY	
SOCIAL AND HUMAN SCIENCES	
ECONOMIC SCIENCES	
ENGINEERING SCIENCE	X
ENVIRONMENT	
AGRICULTURE AND FOOD	X
HEALTH	X
MATHEMATICS	
INFORMATION SCIENCE	
PHYSICS	
NANOTECHNOLOGIES	
ENERGY	
TRANSPORT	
SPACE	

*** Summary of potential research project envisaged hosting of European researcher for the period of between 1 and 2 years**

The target of the project is to prove that the processes of in vitro production (in vitro maturation of pig oocytes; in vitro fertilization; in vitro culture of pig embryos) are much more effective when the parameters of culture conditions are biorhythmically oscillating (with one hour and/or 24-hour periods) but not are excessively stable.

The project's idea:
All processes in nature are organized not only in space but also in time. Particularly, they change on Earth with one hour and/or 24-hour periods. Many processes in living cells and with them must go with these (bio)rhythms which are close to oscillations. Culture under oscillating parameters should make living cells and embryos more viable because they would can use more of their variety abilities, even if some of them, under more variety of culture conditions. For example. Under stable culture conditions, cells and embryos can use lesser isoforms of enzymes (hormones ...), sometimes no one, than they can use under oscillating conditions which are more width, more variety.

Environmental conditions are not excessively stable, hence, culture conditions should not be excessively stable too.

The experimental checking the idea:
In experiment, pH and/or temperature of culture conditions should be forced to oscillate with one hour and/or 24-hour periods. Amplitudes of the oscillations should be found in the experiments. They should be about (close to) values found in reproductive tract of sows. And they can be significantly more of values found in reproductive tract of sows in order to have stimulatory effect.

pH of the medium can be continuously changed by changing CO₂ content in mixture of CO₂ with air which is running above or throughout the medium in culture chamber. Experiments require not only thermostat but also thermooscillator, they need not only CO₂-incubator but also CO₂-(pH)-oscillator-incubator.

	Please, confirm your agreement on data publication and dissemination
I agree with the publication of the data on the web-site http://www.inco-ecca.net , and dissemination among Mobility National Contact Points of the EU MS and AC (YES / NO)	YES
Date	November, 26, 2008.