



DIGEST

7th International No-Till Conservation Agriculture Conference Dnipropetrovsk, Ukraine, 23-26 June 2009

Resource saving is the basis of agro-technological policy

VII International Conference on Sustainable Agriculture based on Systems Approach started on June 23 at Agro-Soyuz Corporation, Dnipropetrovsk. More than 300 people attended the Conference - they were representatives of Ukraine, Russian Federation, Kazakhstan, Belarus, Moldova, Latvia, Libya, Turkey and China.

During the four days of the Conference experts from nine countries of the world (Germany, Italy, Canada, USA, Brazil, Argentina, China, New Zealand and Ukraine) shared their views on the benefits of no-till agricultural systems as well as constraints and their solutions.

- This year we have so many experts that there is not enough space on the stage, but it is a good sign – the moderator of the conference - Konstantin Kovtun - optimistically mentioned.

Such number of experts and attendees shows the increase of interest about the issues of conservation agriculture and improvement of environmental conditions in the world and in Ukraine in particular.

In this context the exacerbation of food security is not an issue of less importance to all the countries of the world. What is it caused by? Is it caused by insufficient food production? Or by the fact that food is getting so expensive that soon it will become inaccessible and therefore unavailable to more and more people?

According to Vladimir Khorishko, the Director of Agro-Soyuz Corporation, food crisis is the result of a discord between food price and cost of production, and consequently a discord between the producer and the consumer. Reduction of production costs will allow for reduction of prices for food and this is possible only through technological modification of agricultural production systems. It is through teamwork involving producers and government that can significantly influence public opinion and make the conservation agriculture technology the basis of agro-technological policy of Ukraine, which is also beginning to be done in many European countries.

The Minister of Agrarian Policy of Ukraine Yuriy Melnik represented the Government of Ukraine. He stated the following:

– Today at this Conference there are people who represent different sectors of agriculture: growers, who implement technologies, experts, who promote those technologies and can assist in

implementing them, scientists, who develop those technologies, and professors from agricultural universities, who explain how it all works together. There are also our friends and colleagues from many countries of the world. We all have come to Agro-Soyuz today not only to listen, but also to share practical experience in development of agriculture in the world, in order to make agriculture of Ukraine more efficient and sustainable. Today food and agriculture production requires such technology, which can offer new opportunities to agriculture, making it more competitive in terms of production costs, instead of relying on subsidies. They say: the winner is not the one who has invented the technology but the one who has implemented it.

**Prime Minister of Ukraine, Yuliya Tymoshenko
(from the letter to the participants of the Conference):**

– Dear guests and participants of the conference let me sincerely greet you on VII International conference on sustainable agriculture based on systems approach. I hope that this important event will bring you one step closer to new approaches to organization of agricultural business – modern, highly profitable, energy saving – since representatives of such countries as USA, Brazil, Argentina, Germany, Canada, Italy, China and New Zealand are going to share their experience in efficient agricultural management. I'm sure that during the conference there will be a productive discussion of the experience gained in Ukraine and beyond in implementation of agrarian technologies in crop production. I believe in good future of Ukrainian agriculture. Wish you successful work!

Minister of Agrarian Policy of Ukraine, Yuriy Melnik:

– On behalf of the Ministry of Agrarian Policy of Ukraine I would like to say that I am happy that we can meet in Agro-Soyuz at the VII International Conference on Sustainable Agriculture based on Systems Approach. For us, it is on the one hand a matter of traditions, and on the other hand, of innovations. And, I believe that in addressing this balance lies our important merit and great opportunity. We traditionally gather at Agro-Soyuz, but at the same time we move forward every year. Maybe not at the pace we all would like to, but nevertheless, nobody can deny that modern technologies are spreading to greater extent in Ukrainian agriculture. More and more managers and specialists in agriculture support them.

Director of Agro-Soyuz Corporation, Vladimir Khorishko:

– There are several grain markets. There is a market of \$400 wheat and \$200 wheat. We can make a seeder wide and expensive and then narrower and narrower, simpler and simpler and have a price range for the product from very high to very low, first reducing working width and then making it simpler. But since it's not possible to make wheat simpler as a product, we have at least several markets for it. We all want to join the wheat market of \$400 per tonne, we want to take a place there so much, but this market is very narrow. The wider market is that of \$200 per tonne. But we are not ready for it. We cannot supply this market without going bankrupt. On \$400 per tonne wheat market we push each other aside, we compete instead of learning to produce wheat with production costs of less than \$90 per tonne and create an absolutely wide, unsaturated wheat market of \$200 per tonne.

Yana Epperlein (Germany) – Crop Production Department of Humbolt University, Berlin and President, European Conservation Agriculture Federation (ECAAF).

– Tillage is culturally established in our heads, but realization of the fact that soil is not a renewable resource among farmers, politicians and society in general results in gradual change in the approaches to soil protection. Adoption of Soils Framework Directive in Europe is considered to be an important step on the way to acceptance of CA as economically and

environmentally efficient production practice. It is expected that this development will increase the level of adoption of CA around Europe.

Amir Kassam (Italy) – Plant Production and Protection Division, Food and Agriculture Organization of the United Nations, Rome.

– Globally there are more than 100 million hectares of arable land under CA. However, CA is not being promoted in any serious manner in Europe despite the associated large economic and environmental benefits. In Ukraine, where the interest in applying CA technologies and practices is increasing and where efforts are being made to transform the tillage-based production systems into CA systems, it is necessary to insure strong policy and institutional support to accelerate the modification of agricultural practices. The current Ukraine Agricultural and Rural Investment Strategy does not adequately address the issues related to soil degradation, nor the agricultural systems that should be promoted to achieve efficient and sustainable production intensification. The transformation of Ukraine's agriculture must be underpinned with new scientific thinking and research, including in such areas as: soil health and nutrient management, weed and residue management, crop rotations etc to fill the knowledge gap about CA which currently exists in Ukraine.

Tom Goddard (Canada) – Senior Resource Policy Manager with Alberta Agriculture and Rural Development, Edmonton, Alberta.

– The world market of carbon is currently growing very fast and is estimated at 100 billion US dollars. In some areas companies can compensate for their emissions of green house gases by buying carbon credits or contracts from those who reduced GHG emissions or can sequester carbon. CA projects can provide carbon credits for many enterprises, emitting greenhouse gases. For carbon market to function properly calculation of volumes of greenhouse gas emissions through emission factors and on the basis of agreed formulae and generation policy is not enough. The development of scientific protocols to make calculations for different types of carbon credit projects, based on technical surveys, gives confidence to buyers and sellers and reduces transaction costs.

Ivo Mello (Brazil) – President of American Confederation of Farmers' Associations, Rio Grande do Sul University Council Member.

– The economies of our countries grow due to agribusiness development. During the last 20 years agricultural production has balanced our external trade. It is agricultural production that has made us an important player on the world market of meat and grain. And I am sure that at least an important part of this economical improvement results from profitability increase due to no-till implementation.

Ronaldo Kuhlmann (Argentina) – Engineer of Agricultural Production, Member of the AAPRESID Board and the AAPRESID International Committee (Argentinean No-Till Association).

– Conservation agriculture is an alternative way of production, which makes it possible to maintain yields and decrease costs, reducing adverse effects on environment, and especially soils. It means that with current knowledge about no-till it is a real and acceptable alternative, which proved to be more ecologically friendly than conventional agriculture systems. But no-till alone is not enough to develop productive and sustainable agriculture. No-till must be used in combination with crop rotation, integrated pest management, weed and disease control, recovery of soil fertility and efficient use of purchased resources.

In the present state of knowledge No-Till is foreseen as the best productive alternative to conciliate opposite interests: attaining a profitable production for companies while implementing agricultural practices that are environmentally sustainable, socially accepted and promote an

efficient use of energy. In this context, AAPRESID has generated an initiative to develop an Environmental and Productive Quality Management System in Conservation Agriculture with the objective to issue a certificate (**AC Certified Agriculture**). In order to do this, it is necessary to create a Good Agricultural Practices Protocol and scientifically based indicators that measure the impact of agriculture in the environment. As a result, an agricultural certification system would be in line with the country's exporting strategy and would help to create a "country brand" without affecting other important sectors of the economy.

Li Hongwen (China) – Professor of Agricultural University of China, Researcher, and Professor of Shandong Polytechnic University.

– The Government of our country pays a great attention to implementation of CA programs, and most documents of the Central Committee include distinct requirements as to the growth of dynamics of implementation of these programs, and stimulation of further development of agriculture. In addition agricultural development must provide support to political progress, improve management, increase investments, be a role model, and promote education. The most important strategy for promoting conservation agriculture is to develop and produce good machines for No-Till operations without which NT system will lose its technology carrier.

Tatiana Korost, Mayak Agricultural Company (Poltava Region, Ukraine).

– *We, the representatives of agribusiness, are involved in a very important social area – food supply, and food is among basic human need. We also experience shortage of milk and meat in Ukraine. That is why we have a broad area of activity and a lot of opportunities for improvement. The food supply problem in Ukraine can be addressed first of all with appropriate state policy. We have an agricultural state and state policy must support priority industries – crop and animal production. Besides we have to create an image of our state on the world agricultural market as an exporting country. However, for that our agricultural products must be competitive on the world market, meaning: of good quality, environmentally safe and relatively cheap. This is the task of the state. We, the growers, will do our best on our part, implementing new technologies, which can make it possible to reduce costs of production and optimize all the processes.*

Timur Daniyarov, Agros Company (Kostanay Region, Khazakhstan).

– *Our farm has 2,500 ha of cropland; the crop rotation includes wheat and barley. We stopped using moldboard plow since 2001. Last year we started direct seeding on 50% of our lands and the other 50% are under minimum till. When we compared the yields we saw that under minimum tillage we got 1.8 t/ha while under no-till, 2.7 t/ha. This year we have changed the ratio 70/30 (with 70% being under no-till) and next year we are going to eliminate minimum-till completely. Regarding the economic benefits of zero tillage, our fuel costs reduced to 25% of what they were previously, corresponding to a saving of 25 thousand USD a year. The new technology also made it possible to reduce labor costs: three years ago we had 8-9 operators and 6 mechanics, now we have 4 operators and 2 mechanics.*

We are at Agro-Soyuz Conference for the first time. We came here to see Horsch/Agro-Soyuz Seeder and to learn more about the technology we are using. We are really impressed; we have seen and heard everything we wanted.

Anatoliy Balaev, Head of the Department of Soil Science and Soil Conservation of the National Resource and Environmental Management University (Kiev).

– *I am a supporter of the resource saving technology, which at this Conference is called conservation technology, meaning that its main goal is to conserve soil and protect it from fertility loss and different degradation processes. My supervisor Nicolay Shikula and our department were among the initiators of this movement together with V.D. Khorishko. At that time when in Poltava region a CA campaign was initiated, Agro-Soyuz also took it up, but at*

Soviet times there were not any economical preconditions for implementation of this system. It used to be applied only for wind erosion control. But now CA system is a core of new advanced commercial technologies.

It's not the first time I participate in such Conferences. For me it is a great opportunity to talk to scientists and growers, to learn current situation in agricultural sphere. It should be mentioned that at this conference much attention was given to the discussion of the issues concerning not only the technology of crop production, but also of soil conservation. And this is helpful and timely. Besides it is a pleasure to realize that every time more and more people understand the importance of soils as the main resource of agriculture and do everything possible to protect them. The data given by the experts prove it. I think their experience will be helpful for our farmers.

Conservation Agriculture is effective: proven in practice

The second day of the conference was even more informative and intense in terms of practice. If the first day was devoted mostly to theoretical and international issues of conservation agriculture and governmental support for implementation of new technologies, this day was devoted to practical sessions in the field.

Despite the scalding sun, farmers tried to find answers to their questions. Having armed with caps, water, notebooks and pens, they listened to the speakers in the field with great interest, asked questions, discussed different issues with the speakers and counterparts. The demonstrations set for each talk in the field of Agro-Soyuz model enterprise made the discussion even more lively. All the demonstrations showed good results.

Robert Blackshaw's talk regarding weed control research was a success (Continuous development of integrated weed management systems in Canadian Prairies). Mustard was seeded first and after that – barley, so mustard became a weed for barley. Robert Blackshaw described the alternative methods of weed control, i.e. about growing competitive varieties. But during the first years of no-till it will hardly be possible to do without herbicides.

With regards to efficient weed control, farmers are concerned not only about the quality of products, but also about their price. Agro-Soyuz Corporation, which is constantly looking for alternative ways to increase the efficiency of crop production and decrease production costs, offers high quality Chinese products as an option to cut crop protection costs. Within the experiments on crop nutrition and protection described by Natalia Skorobogataya, Agro-Soyuz Corporation technologist, control plots with rapeseed were treated with one generally known product and a Chinese product. It has been proved in practice that the only difference between them is the price, whereas the results are identical.

All other talks also stimulated lively discussions.

After lunch, practical sessions continued but they took a little different form. In the afternoon there was a field demonstration of technical system for conservation agriculture: machinery for seeding, crop protection and harvesting. Some farmers saw the machinery set for CA for the first time. Learning about advanced equipment and machinery smoothly turned into round table discussions on problems of agribusiness in general.

Such simple format of talks and informal atmosphere stimulated discussion of issues concerning, first of all, soil fertility improvement and residue cover maintenance as a source of nutrients. There was a vivid discussion of the issue of state subsidies. Some farmers believe that subsidies

are not needed but instead all they have to do is to manage existing resources efficiently. In this case subsidies are regarded as “injections” but not as a source for development. On the other hand if a farmer who uses conservation agriculture practices gets the subsidies, they are beneficial.

The above are just some of the issues of transition from conventional to conservation agriculture practices. Participants were reminded that tomorrow there will be one more day of work. There will be new questions, new solutions will be offered during practical sessions and another round table discussion. But tomorrow is going to be even more interesting, because attendees have learned a lot during the past two days so the discussions are going to be even more productive.

Pavel Grinko, Deputy Director, Engineering Support Department, Ministry of Agrarian Policy of Ukraine.

We take part in such kind of the Conferences on a regular basis, including organization, planning and holding. That is because the Ministry of Agrarian Policy works together with Agro-Soyuz and as a result many issues concerning development of agribusiness, which are being planned and addressed here, are supported by us. You can also see that the representatives of all the regions of Ukraine are informed about all the developments that emerge today in the area of resource saving. That the reason why today the representatives of the main institutions of agricultural development, deans of departments and scientists are present here, that is, the information about implementation of innovation technologies must go all the way through from production structures to educational establishments. Indeed the implementation of such technologies gives positive results: energy consumption can be reduced by as much as 70%. If we take Ukraine, for example, on average we use about 70 liters of diesel per hectare. Is it much or not? It's hard to say, but in 1990's we used 120 l/ha.

Ukraine has all the resources required to implement conservation agriculture practices. As of today Agro-Soyuz Corporation has developed and proposed at the state level 1 million hectare Project, the essence of which is implementation of conservation practices on this area. If the Project is realized on 1 million hectares, then in the near future we will develop a set of supporting programs for farmers. Among them, there will be programs to facilitate purchase of modern machinery for conservation agriculture (compensation of loan interest rates, financial leasing, and if certain changes are made in the budget the program, initiated in 2002, will start working again (30% compensation of machinery price)). So our priorities in budget support will be given to equipment for innovative technologies.

Sergey Merculov, Zelenyi List Holding Company.

Our holding comprises several different enterprises: Project Institute, Reinforced concrete structure plant, two milk processing plants and now we are planning to start farming. We want to have the whole production chain: if we have a farm, we will have to organize feed production. We plan to farm 10 thousand hectares. Those lands have been abandoned for more than 8 years, i.e. they were not tilled, and I think those conditions are perfect for no-till agriculture. For that reason we decided to start with no-till from the very beginning and came to this International Conference on sustainable and efficient crop production. I have never been to such a Conference before, and so my priority is to find potential partners. Such Conferences are perfect for networking and sharing experience.

Victor Korchin, Managing Director of Agro-Alliance Company, Kherson Region, Berislav District.

We have 2130 ha of cropland and a six-year rotation (winter and spring wheat, rapeseed, peas, sunflower, barley) and we have been using no-till for six years. We decided to switch because summer of 2004 was very wet and by early September none of the fields had been tilled. We

faced a problem: how to seed? That's why we bought Horsch-Agro-Soyuz seeder and managed to direct seed winter wheat and barley. After that we started to read about this technology and study it and we never returned to tillage again. Because we gave up tillage, we reduced fuel costs by 60%. The second benefit is that working load decreased, seeding takes only 12 days. Spraying and harvesting operations do not take much time too. I should say that first two or three years were really hard, not because the machinery was not good but because we did not have enough knowledge and experience. However, we were very committed and continued implementing no-till practices, and every year we get higher yields and soil quality improves.

I have been to Field Days organized by Agro-Soyuz, but this is my first International Conference. Actually, I have got what I expected: Agro-Soyuz gives farmers an opportunity to learn, to be aware of all innovations, and to personally talk to world experts.

Sergey Borisenko, Head Agronomist, Dibrova Agrifirm, Kharkov Region.

Our farm is 15 km from Kharkov. We have 2,500 ha of land, where we produce row crops, cereal and industrial crops. This year 420 ha are under no-till and the rest under minimum till. I think that each farmer has to come to conservation practices by himself because of the shortcomings in our science and educational system. To find answers to questions, I talk to farmers, scientists and last year in December I was in Argentina. I always participate in Field Days and Conferences organized by Agro-Soyuz. In addition, such highly topical conference program gives an opportunity for self improvement and understanding no-till system.

Farmers – lifelong students

Live and learn. This phrase determines to a large extent the motto of producers in agriculture. It's hard to say when exactly the "forge" of agricultural specialists failed and stopped producing highly qualified specialists. All ideas about ploughing soil, promoted at agricultural Universities, all knowledge, which seemed perfect before, all of a sudden lost its applicability for modern agriculture.

Approaches to farming and technologies for crop production change over time. One of the most difficult and sometimes impossible tasks (because of certain psychological factors) is to change our thinking and reprogram the mind from tillage methods of our forefathers, which have always been thought to be effective! But soil is a living organism, which is constantly changing and requires careful treatment, it is an organism which doesn't forgive mistakes of farmers. If farmers, who do not want to change, develop, ask questions and learn all the time, ignore the needs of the soil, sooner or later they will lose not only the source of their income, but a resource for food production as well. That is why a farmer has no right to make no headway and be afraid of the new; instead he must be ready for any moment to tune his mind to a new wave of innovations and continuous improvement.

The head of knowledge sector of methodological center of agricultural education at the Ministry of Agrarian Policy of Ukraine Yuriy Borhaleiko, who represents agricultural education at the VII International conference on sustainable agriculture, agreed to talk about the current situation in agricultural education:

- Youriy Alexandrovich, how well are agricultural Universities currently supplied with new literature and up-to-date information about new technologies in agriculture?

- For many years Methodological Center of Agricultural Education at the Ministry of Agrarian Policy of Ukraine has been providing agricultural Universities with educational and methodological literature and didactic supplies for training process. We publish works by our

scientists and teachers as well as producers who are directly involved in agricultural production. As for advanced technologies we monitor all innovations in Ukraine, Europe and the world in general and include them into manuals and publications. But unfortunately we do not have enough information about these technologies, and that is why we are in the state of ongoing search to bring information to our teachers and students through textbooks, manuals and didactic supplies.

- What is the role of such Conferences in knowledge gain in agricultural area?

- We always try to attend such events, held in Ukraine. We bring different materials which are then organized into catalogues at our Methodological center. Besides we organize extension seminars at our level for the faculties of our Universities. Since last year on the basis of our Ministry we started to hold "round tables" on the topic Improvement of training quality of specialists for agricultural production that involved growers, manufacturers of agricultural equipment, scientists, representatives of agricultural Universities and Department of agricultural education, science and guidance. First round tables were organized last autumn in animal production and technical areas. This year the work of round tables was continued in other areas and they are going to work on a continuous basis.

As for the Conference on sustainable agriculture, organized on the basis of Agro-Soyuz I would like to say that its role is very significant both for agricultural education and for Ukraine in general. I think that we will reap its fruits in the near future.

Forty three professors have arrived from agricultural Universities of Ukraine to attend the Conference. They are heads of sub-departments and deans of departments of agronomy and agricultural mechanization. Each of them got familiar with no-till technology both at theoretical and practical sessions, they also got conference proceedings and now they are going to introduce those materials into their educational processes locally. I would like to thank Agro-Soyuz Corporation for organization of this highly needed Conference and with it all the best.

- In Your opinion, should there be practicing farmers in the writing teams, when developing new methodological publications and manuals?

-We will be happy to see producers, who are directly involved in agricultural production, among our authors. We have always invited them (and will continue doing so) to participate with their experience to make manuals more comprehensive and such that represent all the aspects of innovative technologies and new machinery. This, in turn, will be very helpful for both technical and agronomical courses. This will make it possible to improve the quality of agricultural education and agricultural production of Ukraine in general.

After graduation from a University and getting a diploma the education of an agronomist doesn't stop, rather it just begins. When a "raw specialist" faces agricultural production in the real world, questions emerge which hardly can be answered at a University. It is only the use of knowledge gained in practice and continuous communication with farmers, scientists, studying new literature and current information at seminars, master-classes and conferences that allow you to remain on the wave of profitability and success. In other words, agricultural producer has to study all the time -- he has to become a lifelong practicing student.

You asked? We answer!

1. Dust storms. Water erosion. How can a farmer protect himself from those disasters?

Viktor Korchin:

- I'm a "participant" of dust storm in 2007. In Kherson region, Berislavsk district I am the only farmer, practicing no-till, other farmers are still plowing. There are two 260 ha fields bordering my farm. One field after wheat was not tilled and as for the other, tilled one, I seeded barley for my neighbor there, since I had nothing to do. This day eastern wind was blowing. The air was clear over my field, but on his field, I swear, I could not see even the end of the hood because of dust. I would like to mention that I even "benefited" from this dust storm. Nothing was carried away, but a lot was carried to my field. So I support Vladimir Khorishko that the solution to our dust storm problems and erosion is no-till.

2. There is an opinion that some soils are unsuitable for no-till.

Robert Blackshaw:

- I keep hearing arguments: to till or not to till. I just want to give an example. We have lands that haven't been plowed for 70 years. What I want to say is that soil can be productive without any tillage, and it's time to stop asking such questions. Tillage is not needed. If we speak in terms of soils, our soils in Canada are very similar to yours. When I was walking your fields I had a feeling for a while that I was back in Canada. That is why I think that almost all your lands can be farmed with no-till. As for production of certain crops under no-till, I think that all crops can be grown under no-till. But here we have to make a distinction: when you till for many years a plow pan is formed at depth about 20 cm. That is why it takes time to eliminate this layer. This hard layer can be broken naturally under no-till over 2-3 year period by growing forage crops and tap-rooted crops, and after 5-7 years most crops can be successfully grown under no-till.

3. Agribusiness management. Who manages? – We or Nature?

Alexandr Kharchenko:

- I have been in vegetable production since 1990. Since 1997 the climate started to change and all the sequence of operations was disrupted. Before we could seed after May 25 and get a good yield, but after 1997 the temperature is 9 °C till mid June and after that it gets really hot. Modern agriculture reminds me of driving a car along a mountain road, a serpentine. We don't know, what awaits us around the next turn. Nowadays there are many unexpected things at each turn. That is why we have to be very attentive. We have to drive a good car, our breaks and all other systems must be in order, and we have to have as many emergency things as possible to use them if needed. The faster you implement no-till, the sooner the system itself will protect you from water shortage or excess, the more opportunities you will have to manage agribusiness well.

4. A farmer's problem – where can I get a good specialist?

Vladimir Khorishko:

- The direct answer to the question "where do we get a good specialist" is "to train on your own farm". You can send them to our seminars, conferences and schools of practical training. Unfortunately education and science are far behind the leading enterprises of Ukraine, for that reason not out of kindness or for boasting we have to train our specialists by ourselves. Besides in agricultural business, especially a multifunctional one, you cannot do without ability and skills of systems thinking. That is why there must be a course on systems thinking in agricultural universities. You may wonder why I am telling this? Let me give you an example. We have a competition to fill the vacancy of an agronomist. I conducted the interview and I am a physicist by training. The task was common, standard and simple – to make crop rotation and crop protection plans and to substantiate them. What they offered was a disaster. Three contestants, who were not graduate students, but practicing agronomists, offered me plans which could bankrupt the enterprise. One of them planned 18 field operations a year. The other offered the most expensive crop protection plan. This is because they do not feel and realize that farming is a business. Those who come do not understand economics, which is the key component in agribusiness. That is why we have to train our specialists by ourselves. Our agronomists work

mainly on the budget and eventually they get realization and balanced assessment of the business. However, if you trust an agronomist who has not a slightest idea about economics, your business is doomed.

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