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**Programme  
Abstracts**

*down to earth – and further afield*

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**welcomes you all and wishes you  
a successful conference**

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ducts in Lithuania. The certified farmers can obtain 10-20% extra prices. Main products are vegetables, honey, grain, grass-tea. We have not special shops, and the ecological products have been realized in the farm market. Next step is to find a market in foreign countries to sell our products. It will help to involve more conventional farmers into ecological farming. For marketing of ecoproducts we have established cooperative »Ekoimpulsas«.

There is no an advisory system for ecological agriculture in Lithuania. We expect to establish the advisory service in Lithuania with assistance from the Swedish Institute of Ecological farming.

Lithuania already has an inspection and certification system but the system needs further improvement and recognition by the European Commission, because the movement has ambitions to export part of its ecological production. The Swedish certifying body KRAV is expected to provide assistance. The financing to be the most difficult part. It was concluded that for training of inspectors foreign donors should be found. When the system is established farmers should pay for the costs of the system, but as long as they do not get the extra costs back via the prices for their products, the government should financially support the farmers.

### **Small Scale Weed Control Technology. P3; 42**

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We have developed technology for small-scale commercial vegetable farms, which typically have about one ha in vegetable production. It consist of a flexible two-wheel pushable wagon, to which all necessary equipment is mounted. Until now, we have integrated a flamer (two types), a hoe (two types), a weed brush and a seeder to our concept. Most of the tools have the same working principle as corresponding tractor equipment.

Most of the equipment were developed during series of field trials, located on our research station and on commercial farms. Test plants were carrot and onion sets. Pre-emergence flaming for carrot is indispensable. Only slight differences were found between the methods for inter-row treatment during two, relatively dry summers. Inter-row flaming controlled weeds better than hoeing or brushing, but damaged carrots as well, resulting a significantly lower yield. Intra-row weed harrowing reduced the time needed for handweeding by 10% but did not reduce yield. For onion sets, selective flaming in the onion row at later growth stages makes the hand weeding nearly unnecessary. Mechanical inter-row treatments were as effective as inter-rowflaming without any negative effects on the crop.

As a conclusion suitable inter-row treatment depends on crop, soil type and weather conditions. A guide for selecting a suitable method will be presented in the poster. Weed control costs, including labour, with our equipment were compared with a hand hoe technology and with a tractor equipment. Economically our technology was most profitable in the range of 0.1-3 ha. However, since the timing in weed control is crucial, the upper size of a vegetable field should be limited to area, which can be treated within a day or two. In practise, our equipment is suitable for fields smaller than 1-1.5 ha.

### **Measuring the Biological Efficiency of Mixed Farms. P3; 45**

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It critically important to complement existing economical models for measuring the performance of whole farming systems. Such models should focus on biological properties, require a minimum of recordings and be inexpensive in use. They should be flexible enough for use by farmers, to enable them to »take the biological pulse of the farm«.

Basic questions in the tool development process are: What is the net production of the farm as a whole? How much of the net production is based on the farms own resources? When import of mineral N fertilizer decreases and ceases as a result of the transition conventional to ecological farming practises, can net yields of the farm as a whole be maintained or increased?

The model that we presently are developing requires the following recordings at farm level: 1. Livestock and plant products for sale. 2. Calculation of net yields of fodder. Net yield is the yield that, according to feeding standards, supports a certain output of animal produce. 3. Mapping of part of net yield stemming from outfield pastures and imports, as well as changes in number/weight of animals (change of status). All recordings are converted to energy units (MJ).

Since we consider the farm basically to be a human activity system, it is necessary to interact with farmers in the model development process. If the aim is to develop a tool that can aid farmers in their decision making, then farmers must participate in the process of developing those tools. Therefore case farms have been included in the work, farms that already have or presently are converting from conventional to ecological farming practises. In a continuous

The intricate concept of »quality« requires dynamic and comprehensive investigations, combining all sorts of techniques. Thus, interdisciplinary research conveys the advantage of obtaining results from different angles, always keeping in mind that isolated methods can only highlight partial aspects.

### Organic Agriculture Program, Ukraine. P3; 36

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Ecological situation in Ukraine is really strained. Territories of country is saturated by plants. The volume of departures, that accumulated in mining, energetic and metallurgy, is more than 17 milliards tons now. Different source of pollution are throw out about 16 millions tons of harmful matters every year. As a Chernobyl accident result 4.7 millions hectares agriculture lands, that equals about 8% of soil fund in Ukraine, is polluted in radionuclides. All these facts are very unfavourable for population living conditions.

The problem of secure products manufacturing is separately topical. This problem decision is impossible without organic agriculture development in Ukraine. Therefore, a program »Organic Agriculture« worked up and realized in the country. 15 leading agricultural institutes take part in this program.

In our opinion, the main aim of organic agriculture is harmonization in relationships between peoples and environment with spineless influence to soil, that is one of basic biospherical components. The stable equilibrium achievement for agroecosystems is very important. Healthy soil without any degeneration sign, which have ability to provide for getting high crops of healthy products in different weather fluctuations.

Ukrainian scientists investigations in problem of organic agriculture permits to formulate some basic principles, which provided stable equilibrium state in agroecosystems

- energetic balance in »soil-plant« sistem;
- rational sufficient in organic fertilizers use;
- optimization of soil gumus state.

Our scientists had worked up:

- granulated organic fertilizers with regulated content of nutritious elements;
- microbiological preparations based in vesicular-arbuscular micorriza;
- organic fertilizer »biogumus« obtained with help of vermian culture;
- ecologically safe system soil cultivation;
- biological method to fight against to weed based in intercropping.

These elaborations have been adapted with IFOAM's requirements and recommended Ukrainian farmers for use.

### Development of Ecological Agriculture in Lithuania. P3; 39

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The Association of Ecological Agriculture in Lithuania was established in 1990. It became a full member of IFOAM in 1991. There are about 170 members of Association now, more than 150 of them are farmers, the others are teachers and scientists who are interested in ecological agriculture and are propagating these ideas. All farms are private and average size of the farm is 15 ha.

The Control Committee inspected 64 farms in 1995 and issued 36 certificates of which 6 farms are fully converted and 30 are in conversion. We expect to have 70 certified ecological farms in 1996.

In Lithuania financial support for ecological agriculture is concentrated in the Karst region, a region with several ground water pollution problems because of its geological characteristics. In other parts of Lithuania the development of organic agriculture is supported by many governmental and non-governmental organizations. The conversion subsidy would stimulate a large group of farmers to convert to ecological agriculture. The free of interest credits are accessible for integrated and ecological farmers in Karst region. We would suggest the State to provide a subsidy during 2 years at a level of 20% (of the normal wheat yield) or free of interest credits for farmers in conversion in whole Lithuania.

Until now the promotion of Ecological agriculture was done in the seminars for farmers. We have the network system for educational seminars in agricultural schools. We have possibilities to train farmers abroad with help of SVWO (Switzerland), MESA (USA), LOGO (Germany), REC (Hungary), FDPA (Poland) and others. We have regular space in the newspaper to issue quarter newspaper together, but we need a financial support for it. We have issued some brochures and leaflets.

The priority campaign to be taken in promotion of Ecological Agriculture is to develop the domestic market for existing certified products. The promotional campaign would be targeted at the Lithuanian consumer, who would be able to buy organic products. There is a very big demand for ecological pro-