

**International Year of Pulses 2016**  
**Regional Dialogue for Europe and Central Asia**  
**Draft Report**  
**Nutritious seeds for a sustainable future**  
Sapienza University of Rome, Italy, 12-13 October 2016

## **I. EXECUTIVE SUMMARY**

The Regional Dialogue, held at Sapienza University of Rome, on October 12-13, 2016, gathered 70 stakeholders, experts from academic and research institutions, international organizations, farmers and government representatives from 11 countries to discuss the most common challenges and constraints regarding the production and consumption of pulses in Europe and Central Asia (ECA). The aim of the Dialogue was to understand the current state on pulses in the ECA region, to agree on common priorities for the advocacy and promotion of pulses and to identify knowledge gaps and research needs. The Regional Dialogue was also a great opportunity to raise awareness on multiple benefits of pulses for health and nutrition, for sustainable food production and food security, and to promote a better and broader use of pulses in production, consumption, and trade.

The Dialogue focused on core issues, benefits, challenges and priorities in the production and consumption of pulses, on mainstreaming pulses into national and regional food security policies, and on the challenges and needs in pulse crop research. Participants highlighted the necessity of shifting the production of pulses from subsistence to commercial farming in developing countries and the importance of providing incentives to pulse growers. Farmers need to be part of the dialogue, they need to have access to new technologies and improved varieties as well as trainings and extension services. A better and stronger collaboration between different stakeholders on regional, national, and local levels should be established, while FAO's neutral forum should be used to facilitate articulation of bottom-up needs towards top-down policy processes.

Participants highlighted the importance of raising awareness on pulses' health and environmental benefits through school programs and the media, as well as of creating new healthy pulse and pulse-based products to meet consumers' changing demands. They proposed the establishment of recommended daily intakes for different groups and diets as well as of country profiles on pulses.

The Dialogue welcomed the creation of FAO/INFOODS Global Food Composition Database and the research and development of new varieties that are suitable for different climates and can withstand climate change. Participants, however, stressed that more funds are needed for basic and applied research to provide farmers with new mechanization, harvest and post-harvest technologies, new knowledge on food composition, as well as consumer behavior and needs. Participants argued for the creation of context-based national policies that would take into

consideration different needs and priorities of every country and sub-region and would include local biodiversity and short food chains. Despite the heterogeneity of the ECA region in terms of policies, lifestyles, consumption patterns, different challenges and needs, levels of production and enabling policy environments, a number of common recommendations were put forward.

## **II. REGIONAL OPPORTUNITIES AND CHALLENGES OF THE PULSES SECTOR**

### **Pulses production: challenges, issues and priorities**

The Dialogue highlighted the highly concentrated nature of the production of pulses (the top 5 producing countries India, Canada, Myanmar, China, Brazil account for half of world production) and the fact that in Europe the production of pulses has decreased in the last two decades. In developing countries pulse production is of largely subsistence nature and there is lack of investment in the sector since pulse cultivation is generally not considered profitable. Production of pulses is significantly lagging behind other crops such as soybean, maize and rice, despite the fact that pulses can provide a low-cost solution for people in need and help fight hunger and malnutrition. Europe and Central Asia have largely shifted to cereal monoculture and the expansion of irrigated land has pushed pulses into marginal areas with the better land used mainly to grow cereals. Other challenges identified in the ECA region by FAO experts are: low yields and small size of farms, lack of mechanization in small-scale pulses production, high share of manual work, lack of organization and technical support for farmers, difficulties with seed quality assurances, pulses marketing, and low market price.

Generally, there is insufficient government support to farmers. Losses during harvesting, threshing and storage can be significant, and farmers face issues with the control of diseases, pests, and weeds. In addition to this, there is only limited research in the sector and farmers lack access to technology and improved varieties.

Due to the above-mentioned issues, participants particularly stressed the need of shifting the production of pulses from subsistence to commercial farming in developing countries and that mechanization means and new processing techniques should be developed for smallholders. Participants agreed that governments should recognize advantages and benefits in the production and consumption of pulses, invest in research and provide incentives to farmers, which even in small amounts can motivate a large number of growers to cultivate pulses and thus enhance overall productivity.

Participants emphasized the importance of strengthening the link between decision-makers and farmers and of taking into account the farmers' perspective. Farmers should be part of the dialogue and instead of the top-down approach, a bottom-up approach should be created, taking into account even short chain supplies and local biodiversity. Inter-sectorial and multi-stakeholders collaboration at national, regional, and global levels should be promoted and better communication should be established between the sectors of research, agriculture, health and education as well as between scientists, farmers, and governments.

Participants agreed that FAO's neutral forum should be used to facilitate articulation of bottom-up needs with top-down policy processes involving a wide range of relevant stakeholders. Some

participants advised that during these forums, every country from the ECA region should have at least one representative, that could be appointed even in collaboration with local embassies. This would ensure a more diversified dialogue, involve different national and regional perspectives and examples and would enable a wider exchange of knowledge and skills on national levels. Some participants argued for the need of better translation services that would make discussions more articulated and involve experts who are not fluent in English.

Participants stressed the important role of scientific institutions for the development of new varieties and cultivation technologies and the need for a better communication between research institutes and farmers to improve pulses selection/breeding and extension services. Latest knowledge and research results should be transferred to farmers (especially from small and medium-size farms) in useable forms through targeted fora and platforms for knowledge and data sharing, and farmers should have access to technologies, new varieties, and genebanks.

Farmers need access to crop and market information and credit to invest in their farm businesses, but they also need to be motivated and be aware of the benefits of the cultivation of pulses, which, as has been stressed throughout the Dialogue, improve soil fertility, productivity of farmlands, increase farm biodiversity, have low carbon footprint and low food wastage footprint. Participants agreed that specific trainings and extension services should be provided for farmers and that a knowledge hub is needed to improve the genetic database on pulses as well as agricultural practices platforms. The Dialogue welcomed the development of FAO/INFOODS Global Food Composition Database for Pulses and highlighted the need of maintaining the database and filling any remaining gaps. Due to the heterogeneity of the region and large regional and national differences, participants argued for the creation of country profiles on pulses and for appointing for every country one expert representative who would be responsible for its maintenance and update.

During the Dialogue some agricultural and medicinal platforms were presented as a way of sharing knowledge and finding practical information on agricultural technologies and practice: TECA, Escorena, NCDN Thematic Knowledge Network and Medicinal and Aromatic Plants (MAP) Thematic Knowledge Network in Europe and Central Asia.

### **Pulses research and new varieties**

Research done so far has revealed numerous benefits of pulses for health, environment and food security, their ability to biologically fix nitrogen and their contribution to maintaining and increasing the vital microbial biomass and activity. As has been demonstrated, pulses are a crucial component of multiple cropping systems that have greater species diversity, and as such bring to more efficient use of resources, increased yield, and reduced risk of overall crop failure. Besides, pulses have a broad genetic diversity and can be a good answer to climate change as well changing consumer demands.

However, there are still numerous gaps and needs in terms of knowledge on pulses and new varieties and generally there is little research in the sector both in developed and developing nations. As has been underlined by the Global Pulse Confederation, there is a need for a 10-fold increase in pulse-research funding, for a shared research agenda and

strategy. Some of the priorities identified by the GPD include agronomy research, development of genomic tools for breeding programs, improvement of genetic gain, pest resistance and quality.

Participants agreed that investments in basic and applied research should be promoted and increased to fill the gap of available data and improve the knowledge on pulses. This would strengthen the evidence basis on pulses to support policy and program development and implementation, it would provide farmers with new mechanization, harvest and post-harvest technologies, new knowledge on food composition and consumer behavior and needs. Participants stressed that new research results would allow maximizing the production, clarifying pulses' real influence on the mineral composition of soil and the environment in general. Research results would also bring to the development of mechanic harvesting techniques making pulses more "attractive" for large size farmers and to the development of more resistant varieties eliminating the stigma of pulses of being a risky crop. Research also needs to give answers to how to decrease anti-nutrients and cooking time and remove pulses' secondary effects.

Participants emphasized the importance of researching varieties of pulses to have the possibility to grow them in regions with different climate conditions and increase their resilience to climate change, since the heat stress would pose a big threat to production. They also argued that in breeding programs existing biodiversity should be explored before embarking on genetic modifications by taking nutritional composition into account.

The Dialogue welcomed the work of the International Center for Tropical Agriculture, whose scientists are currently working on improving varieties that can grow above the crop's "comfort zone" and the drought-tolerance chickpea variety (Gokce), developed by the International Center for Agricultural Research in the Dry Areas, in collaboration with the Turkish national scientists, which withstood severe drought in Turkey. ICARDA presented the development of herbicide tolerant pulses varieties (screened lentil, chickpea, and faba bean against herbicides Metribuzin and Imazethapyr), of Orobanche tolerant faba beans and lentils (Orobanche, which is a serious problem in Mediterranean environments), and of machine harvestable pulses. In addition to this, five bio-fortified varieties were released in Bangladesh and now cover 90,000 ha area.

Priorities in research should also aim at yield stability, reduction of post-harvest losses, strengthening of the seed system and plant-genetic resources by improving research on seed processing and storage. Traditional and often forgotten dishes and lifestyles and consumer demands and behaviour should be studied as well. Since a large part of pulses in Europe is used as feed, it is of great importance to find other feed sources such as insects.

### **Pulses consumption and the development of new products**

The Dialogue highlighted numerous nutrition (high protein, high fiber, low fat, minerals, B vitamins, etc.) and health benefits (reduced risk of obesity, diabetes, cardiovascular disease, etc.) of pulses but also consumers' unawareness, their lack of information as well as low consumption trends. The Dialogue raised concern over the relatively low dietary shares of pulses at global and regional levels and the slow consumption growth in developed regions, particularly Europe and Northern America. The average intake of calories from pulses in the region is relatively low (32 calories a day), as calculated by Eleonora Dupouy based on FAO data – highest in Western Asia (81) and Southern

Europe (56), and smallest in Central Asia (5) and Western Europe (13) – and particularly in Europe pulses are mainly utilized for feed.

The low consumption of pulses is even more striking when compared to the consumption of meat and dairy products, which according to the latest FAO data have risen significantly. The consumption of dairy products has risen from 76 to 90kg/person/year and the consumption of meat has grown from 26 to 42kg/person/year, while globally around 7 kg of pulses are consumed per person per year (64 calories and 4 grams of protein per person per day). What is more concerning is that the consumption of meat and dairy products is predicted to continue to rise, while no changes are foreseen for the consumption of pulses.

People generally prefer to consume meat instead of plant proteins and are not informed about the fact that pulses are an excellent source of proteins. Participants highlighted the importance of raising awareness and disseminating information on pulses' numerous health benefits such as fighting overweight and obesity, which are one of the major health concerns in the region, and on pulses being an excellent protein source for vegetarians and those who want to lower their high meat consumption and eat healthier and less monotonous diets, which is another health issue in the region.

Pulses, on the other hand, play an important role in many least developed countries such as Niger and Rwanda and are generally viewed as a cheap source of protein. Due to this in developed countries they carry the stigma of being "poor people's food" as the increase of income also increases people's consumption of meat. On the other hand, the modern fast lifestyle has a negative impact on the consumption of pulses since more time is required for their preparation. As has been pointed out by some of the participants, pulses not only need a longer period of time to be prepared, but their preparation can also involve planning and buying pulses and other ingredients a day before. Some participants raised the issue of taste and aspect and that young people, particularly in Italy, usually prefer to eat "good looking food", which is also related to the emergence of the so-called *food couture*. Others pointed to the fact that dishes with pulses are largely unavailable in restaurants and that people increasingly consume junk fast-food and unhealthy ready-made food, which are lowering the consumption of healthy food, including pulses. In addition to this, people avoid consuming pulses also since their consumption is associated with bloating and flatulence. What was suggested was a market research that would have the aim to understand consumers' need and priorities in order for the food industry to be able to design and offer new products. Participants highlighted that research should focus on new varieties with less phytate or bloating components and with lower cooking time.

Participants agreed that nutritionists, doctors, and teachers should work on raising self-consciousness about food culture in general. The benefits of pulses should be promoted through school programs, pulse and pulse-based dishes should be part of school meals, and information of their benefits should be taught through school books and school curricula. In addition to schools, the benefits of pulses should be disseminated through the use of TV advertising, social media, like YouTube recipes videos, and also by famous people and well-known chefs who can popularize this "forgotten food". Doctors, dieticians, teachers, chefs, nutritionists, and "champions" of social

media and the media in general should be educated and trained on pulses' benefits and how to pass this information to others.

Participants agreed that pulses should be promoted as dietetic wellness-related food, suitable also for vegetarians, and new pulse and pulse-based products should be designed, including healthy pre-cooked food and takeaway meals. Some participants proposed that pulses could be promoted as fashionable ethnic food, such as humus and falafel, which are increasingly popular. Environmental benefits of pulses also have to be an integral part of the promotion, since they could increase consumption as well, especially among the so-called green consumers.

Besides innovation aimed at new recipes and new pulse products, participants stressed the importance of reviving and promoting traditional recipes with pulses and promoting their use. Some countries have numerous traditional dishes with pulses, such as Turkey, which need to be promoted not only within the country, but also outside. Chefs, nutritionists, and educators can learn from good practices from other countries and find tips and ideas for their meals: for example how to use pulse flour, used for making cakes in Vietnam. Recipes should also include tips and suggestions on how to make pulses more digestible and how to avoid bloating.

Participants regretted the fact that there are no clear recommendations when it comes to the necessary daily intake of pulses (1 gram for one kg of body weight?). They suggested the establishment of daily intake recommendations for different diets and different groups, which would include people with diabetes, heart diseases, etc. This could be done also through equivalence tables, which can demonstrate, for example, how to exchange meat and milk proteins with pulse proteins.

### **Mainstreaming pulses into national food security policies**

Pulses' production and consumption should be part of national food security policies, since pulses are not only beneficial for health and nutrition, but also for food security and sustainable agriculture. So far, there has been none or little and uneven research and support from governments in the ECA region regarding the production and consumption of pulses and participants emphasized the crucial importance of providing incentives to farmers.

Examples of Bulgarian and French governments' subsidiaries were provided, in particular the latter released a plan in 2014 to increase the production of protein crops in 2014-2020 by giving subsidies to farmers.

When it comes to devising policies on pulses, participants particularly stressed that they should be context-based and adapted for national levels. In the region, different practices, historical legacies as well as needs and priorities exist due to which it is impossible to speak about one umbrella policy, but only about general suggestions and guidelines that could be adapted for different cases. Participants highlighted the large discrepancy between Eastern and Western Europe as well as between Europe and Asia not only when it comes to production and consumption of pulses, but also regarding traditional dishes and lifestyles. They also stated that the situation in the EU is far more favorable for the production of pulses than in other areas.



Participants emphasized the importance of the FAO/WHO Second International Conference on Nutrition (ICN2) Framework for Action (FfA), which recommends major shifts in the way malnutrition is addressed by raising the nutrition sensitivity of agri-food systems, promoting crop diversification and food-based approaches for achieving sustainable and healthy diets. Specifically, during the Dialogue it has been suggested that when devising policies concerning pulses articles 8-12 and article 58 should be taken into consideration. In particular, national policies and investments should be reviewed and nutrition objectives integrated into food and agricultural policies, local food production and processing, especially by smallholders and family farmers should be strengthened, giving special attention to women. Storage, preservation, transport and distribution technologies and infrastructure should be improved to reduce seasonal food insecurity, food and nutrient loss and waste, while institutions, policies, programs and services should be improved. National governments are encouraged to establish nutrition targets and are invited to track progress in achieving them.

When devising national policies, different stakeholders should be involved, including farmers and civil society and specific attention should be placed on gender balance. Policies should also take into consideration short food chains and local biodiversity. Slow Food Foundation for Biodiversity's projects were presented that aim to sustain local biodiversity, such as the project Ark of Taste that collects small-scale quality productions that belong to different cultures and traditions from different parts of the world as well as Leguminosa, a project that aims to promote the values of legumes, for which, as it is stated, the market still has little interest. Another organization presented is Terres Univia that gathers organizations involved in the production, marketing, processing and use of oilseed and protein-rich plants.

As has already been mentioned, recommended intakes of pulses should be provided for different diets and groups, and a specific strategy should be designed for schools, promoting pulses through school meals and school books. Due to the importance of pulses, not only for human health, but also for soil fertility and fighting hunger in the world, and on the other hand, due to lack of information and awareness, some participants argued for the establishment of a World Pulse Day, which would annually promote the benefits of pulses with the aim to increase their production and consumption.

### **III. RECOMMENDATIONS**

Acknowledging the numerous benefits of pulses for nutrition, traditional diets, health, environment sustainable agriculture and food security.

Considering the heterogeneity of the region regarding policies, lifestyle, consumption patterns, different challenges and needs, levels of production, farming, cultures, enabling policy environments, farm sizes.

Noting that the promotion of pulses can be seen in competition with less healthy food and meat.

Recognizing that the entire food system and lifestyle are the drivers of supply and demand of pulses, including availability, price, perception, and knowledge on pulses.

Realizing the importance of nurturing environments that are conducive to production, consumption, trade, and value chains related to pulses, the Recommendations of the Regional Dialogue of Europe and Central Asia are:

1. Strengthen the evidence basis on pulses to support policy and program development and implementation.
2. Increase investments in basic and applied research and development on productivity stabilization, mechanization, harvest and post-harvest technology, food composition, consumer behavior and its determinants.
3. Develop targeted fora and platforms for knowledge and data sharing on pulses.
4. Promote the innovation of healthy pulse and pulse-based products, as well as simple pulse recipes and the revival of traditional recipes, taking existing biodiversity into account.
5. Develop targeted educational tools and programs towards children and schools.
6. Establish a World Pulses Day celebration.
7. Develop a daily intake recommendation specifically for pulses for the general public and particular groups.
8. Take advantage of FAO's neutral forum to facilitate articulation of bottom-up needs with top-down policy processes involving a wide range of relevant stakeholders.
9. Strengthen the seed system and plant-genetic resources conservation.
10. In breeding programs explore existing biodiversity before embarking on genetic modifications by taking nutritional composition into account.
11. Strengthen advisory services and training for farmers on pulses.
12. Promote inter-sectorial and multi-stakeholders collaboration at national, regional, and global level.
13. Develop country profiles on pulses in collaboration with countries.
14. Adequately take into account the role of women.
15. Enhance short chain supplies and integrated market services especially for small-scale farms.
16. For FAO to lead the collection, analysis and dissemination on data and information on: advisory services, food composition, Hortivar, relevant pulses per country and incentives, ongoing research and experts.