Avenues for Sustainable Development of Fruit and Vegetable Production in Uzbekistan

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International Conference

The most important reserves of implementing Food Program in Uzbekistan

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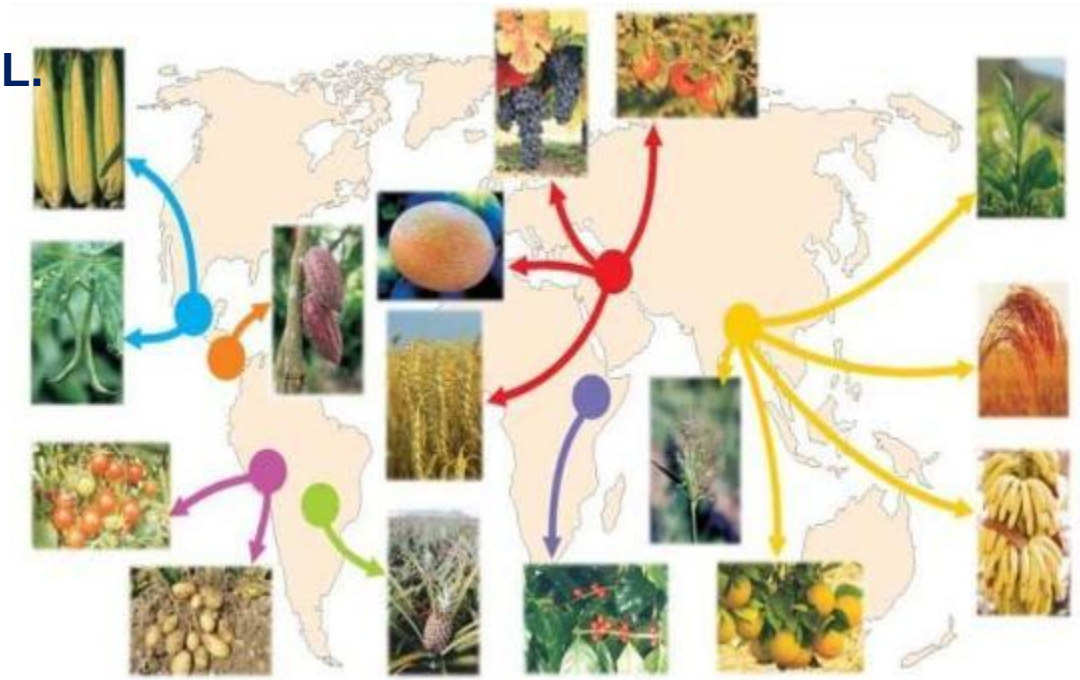
Outlines

- Introduction
- Global and regional challenges
- “Save and Grow” and sustainable crop production intensification
- Perspectives on developing vegetable, grape and fruit production in Uzbekistan
- Technical implementation of the concept
- Conclusion

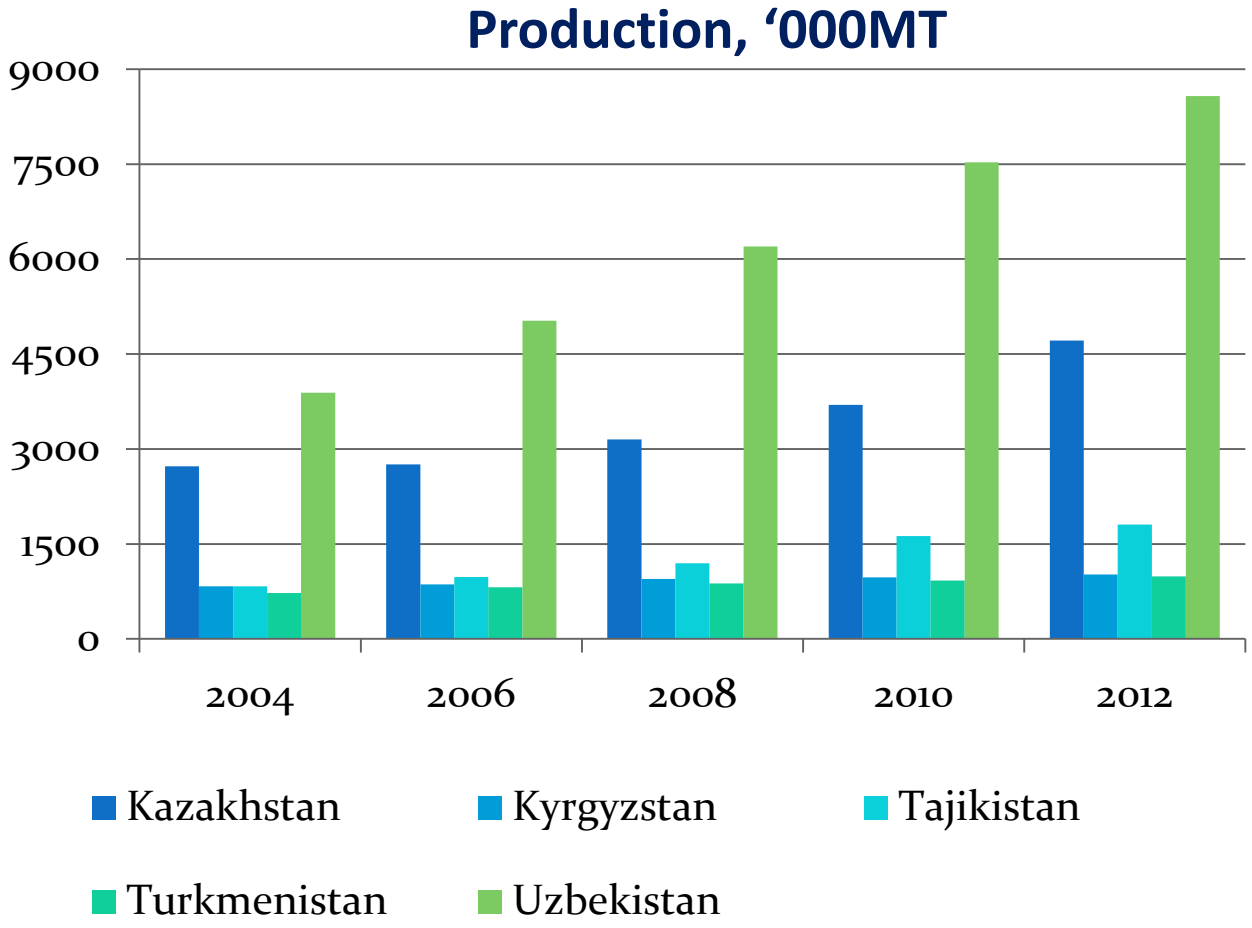
Uzbekistan as a part of Central Asian Center of Origin and Diversity of Crop Species (Vavilov, 1935)

Fruit and Vegetable Species

Almond – *Amygdalus communis* L.
Pistachio – *Pistacia vera* L.
Apricot – *Prunus armeniaca* L.
Pear – *Pyrus communis* L.
Grape – *Vitis vinifera* L.
Apple - *Malus* P.Mill.
Walnut - *Juglans regia* L.
Pomegranate - *Punica* L.
Fig - *Ficus carica* L.
Melon - *Cucumis melo* L.
Onion – *Allium cepa* L.
Garlic - *Allium sativum* L.
Carrot - *Daucus carota L.*



Vegetable Production and Consumption



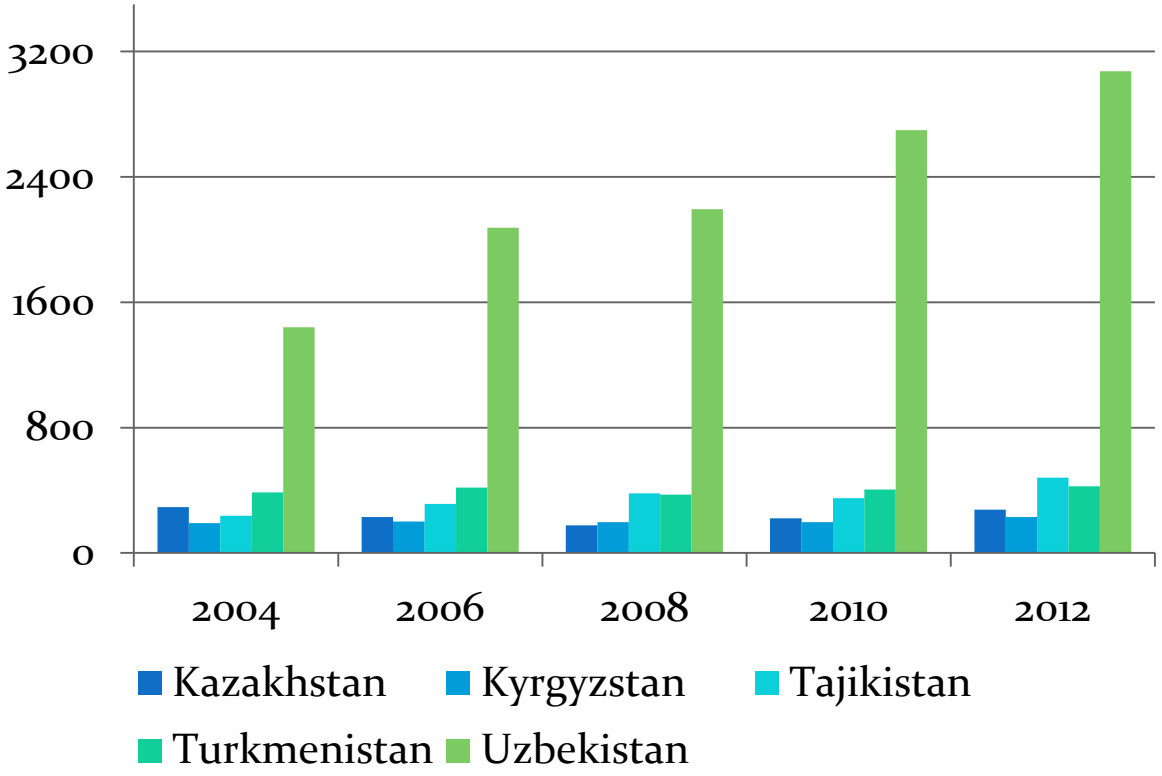
Consumption, kg/capita

Kazakhstan	174
Kyrgyzstan	153
Tajikistan	152
Turkmenistan	138
Uzbekistan	208
World	132
WHO	140

Source: FAOSTAT, 2014

Fruit Production and Consumption

Production, '000MT

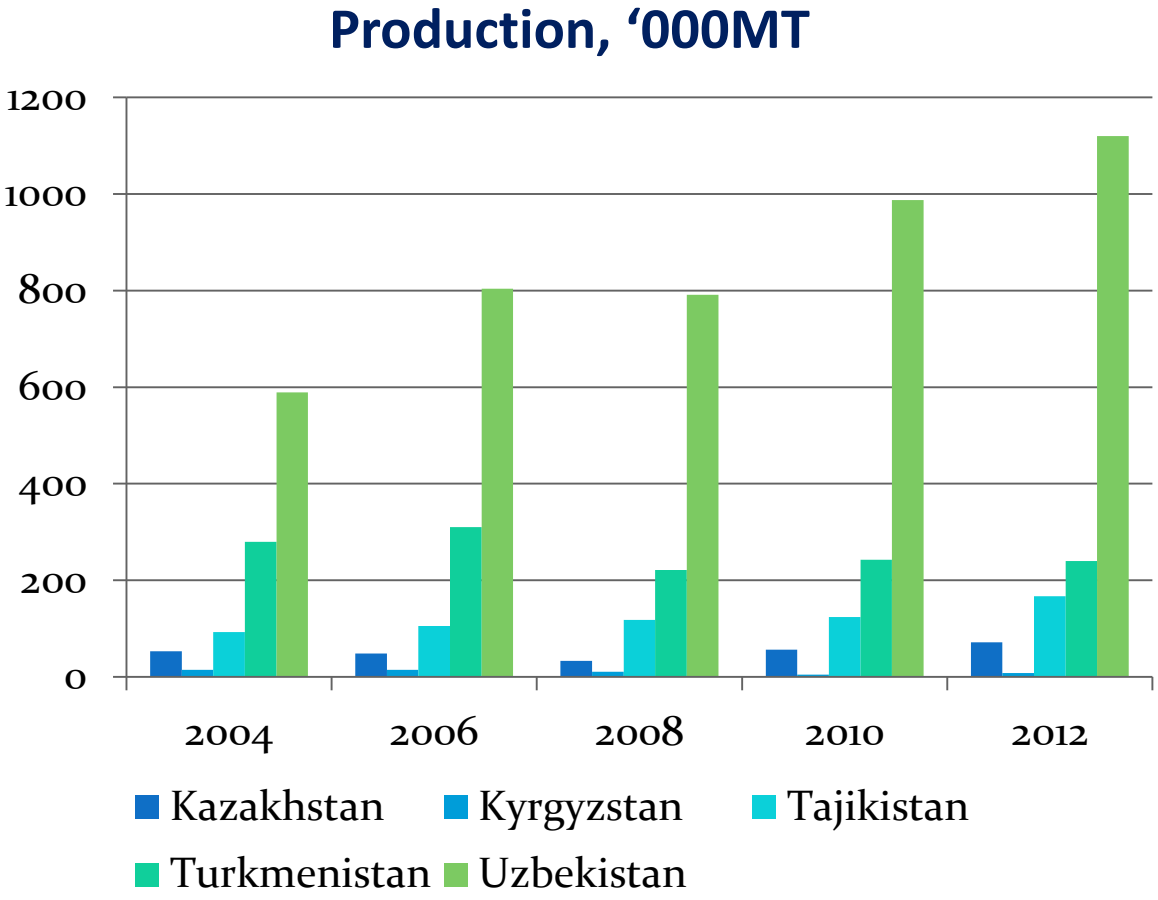


Consumption, kg/capita

Kazakhstan	40
Kyrgyzstan	33
Tajikistan	23
Turkmenistan	48
Uzbekistan	68
World	73

Source: FAOSTAT, 2014

Grape Production and Consumption



Consumption, kg/capita

Kazakhstan	2
Kyrgyzstan	1
Tajikistan	15
Turkmenistan	25
Uzbekistan	23
World	4

Source: FAOSTAT, 2014

Fruit and Vegetable Production in Uzbekistan

Uzbekistan ranks in the world:

3 rd in Apricots production

7th in Cherries production

18th in Apples production

- During 1996-2012 production of vegetables per capita increased twice, fruits - 2,5 times, potato – 4 times

First rank in Central Asia

- Tomato
- Grapes
- Carrots and turnips
- Apples
- Onions, dry
- Vegetables,
- Apricots
- Cherries
- Cabbages
- Cucumbers
- Almond

Second rank in CA:

- Potatoes

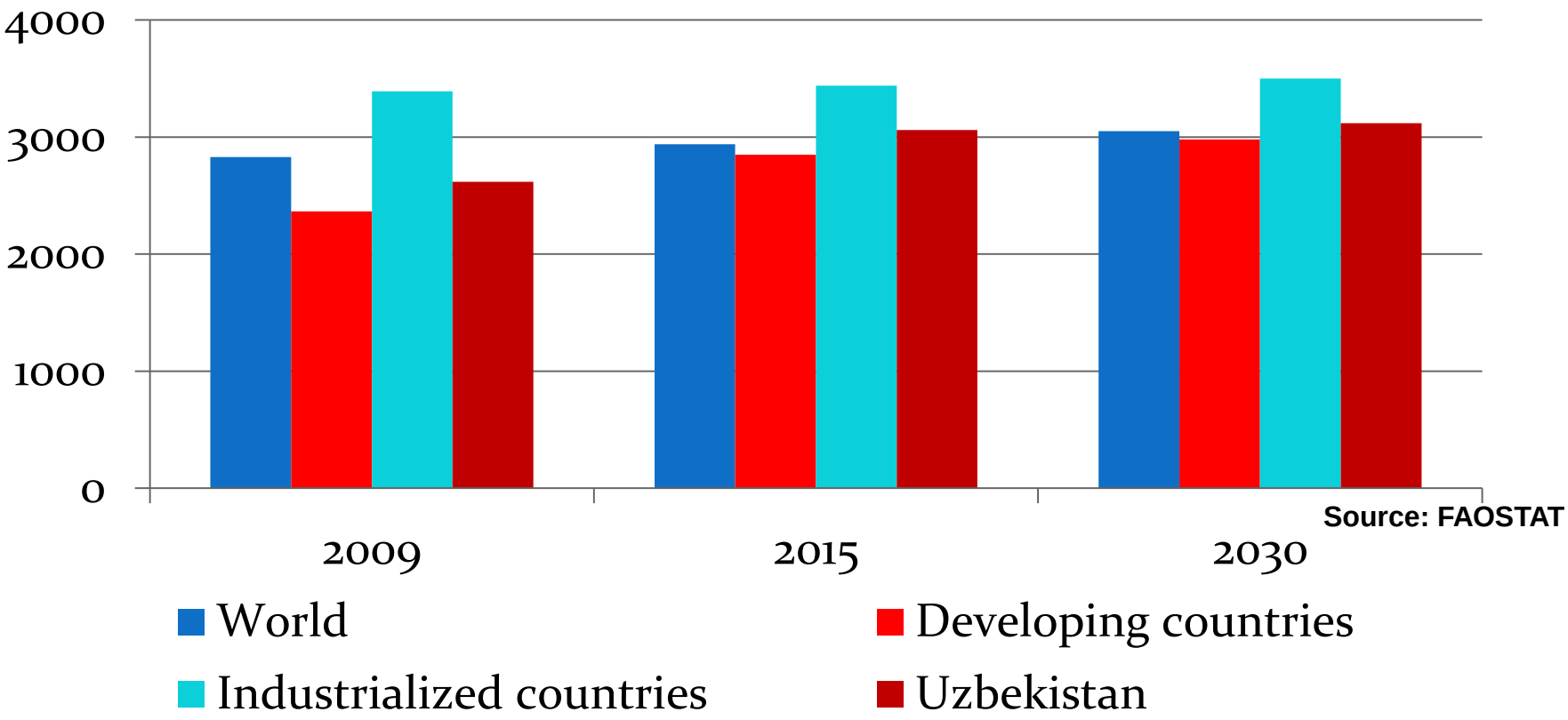
Grape and Wine Production

- More than 40 types of grapes cultivated, including 6 raisin and 18 table types
- Uzbekistan is in top 20 countries by volume of wine production
- More than 150 varieties of wines produced
- Production volume 3,4 million deciliters
- Export - 2,9 million decilitres (85,3%)

Current developments of fruit and vegetable production

- Establishment of intensive orchards on > 5,000 ha (2011-12)
- Modern and energy-saving greenhouses on >7,000 ha
- Construction of 129 new cold storages with the total capacity of > 90,000 tones
- Modernization of 57 cold storages with the total capacity of >34,000 tones
- By 2015 planned to construct new cold storages with the total capacity of 120,800 tones and modernize existing ones with capacity of 49,100 tones

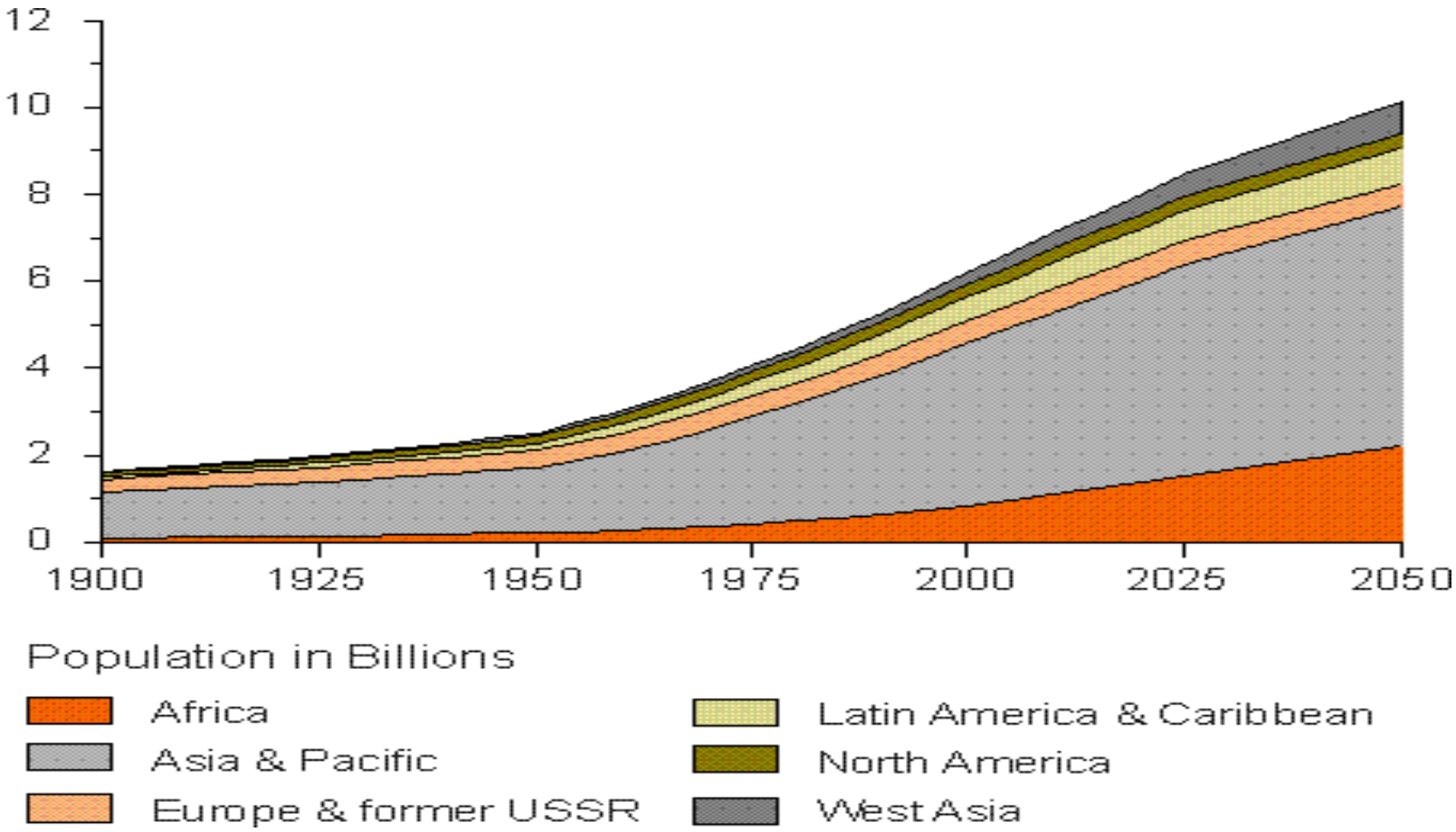
Food consumption, Kcal/capita/day



Source: FAOSTAT

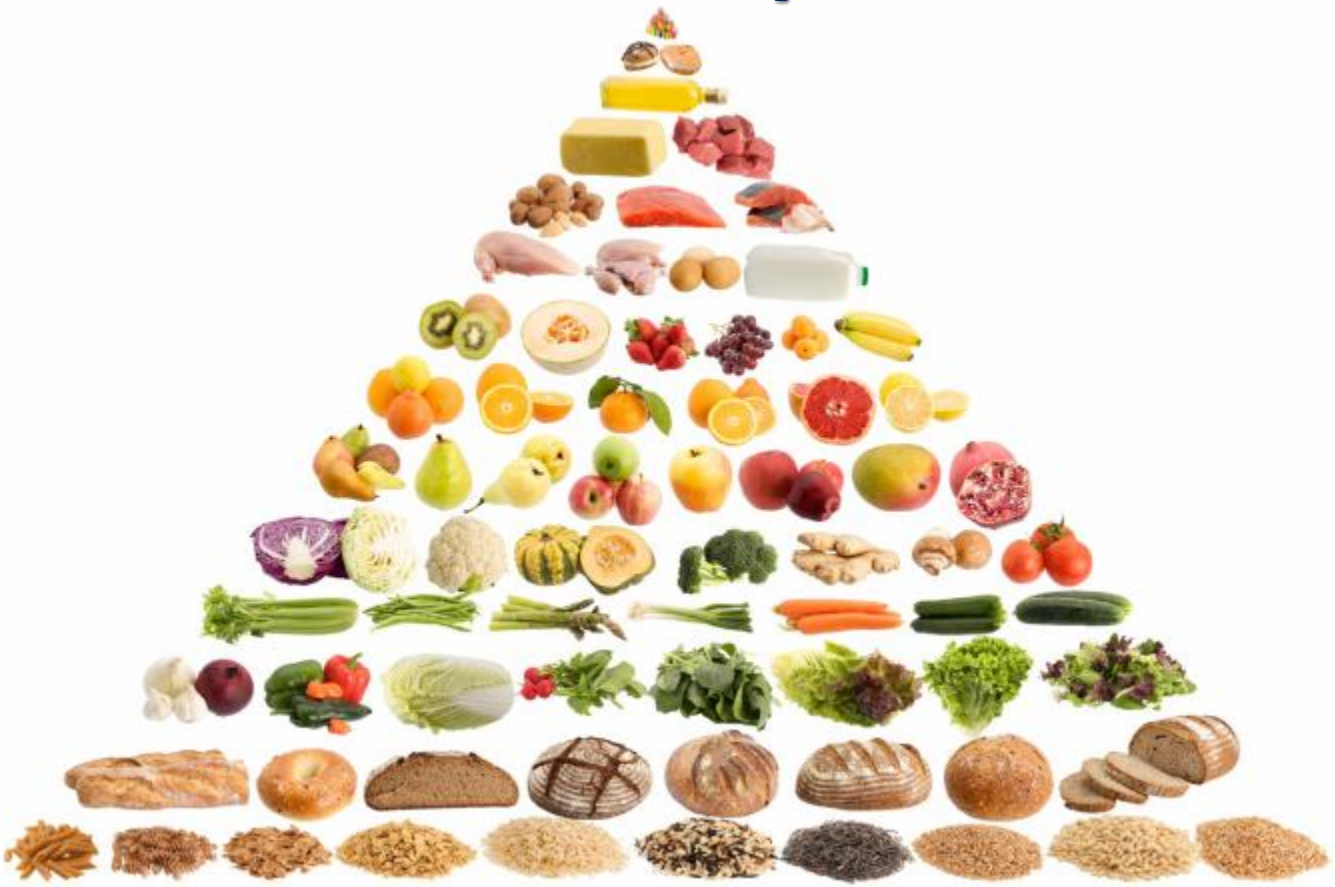
- 82% of calories come from crop and 18% from animal products
- Food production per capita in exceeds the WHO standards

The global challenge



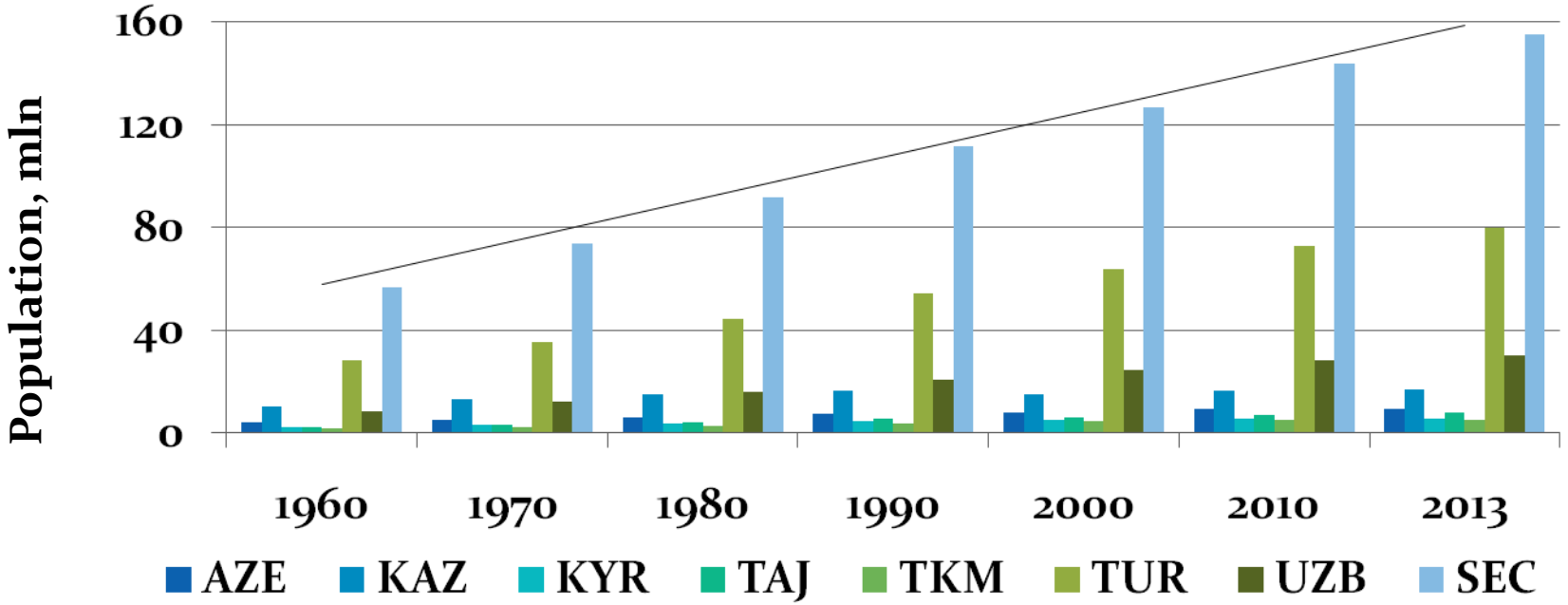
Demand for food and feed is predicted to rise by 60% over the next 40 years

Food Guide Pyramid



Fruits and Vegetables: The key source of micronutrients, promoting healthy diets and lifestyles to reduce the diseases

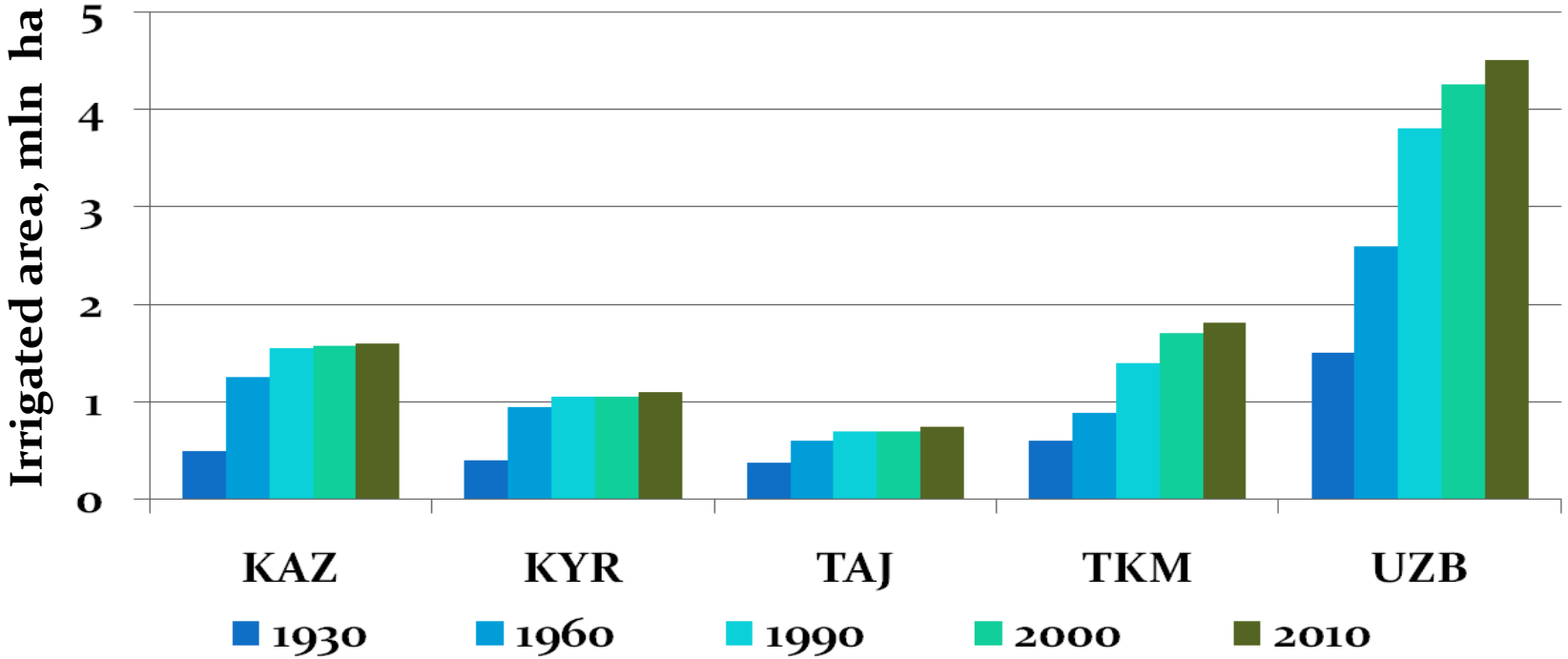
Current and emerging challenges



Source: FAOSTAT, 2014

Rapid growth of population followed by increasing demand for food and feed

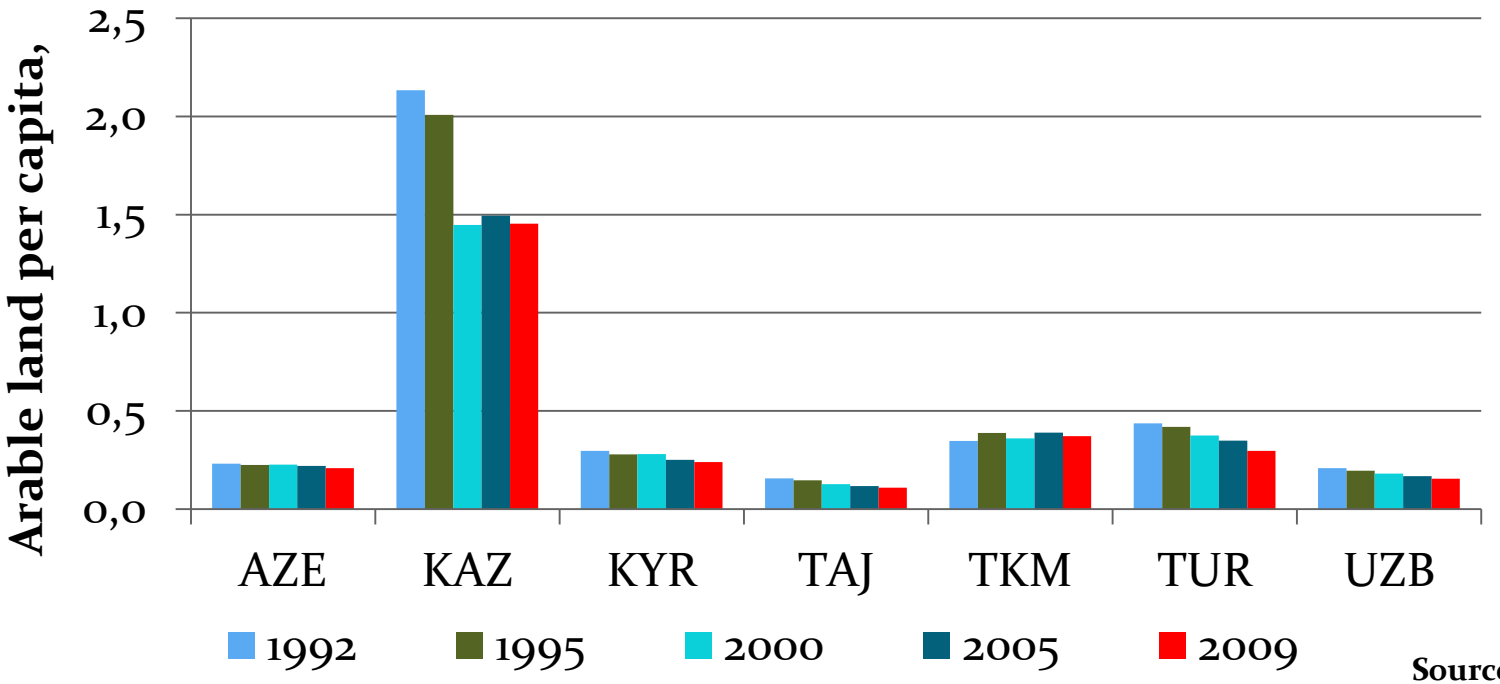
Current and emerging challenges



Source: FAOSTAT, 2014

- *Area under irrigation has been increasing, but no more possible.*
- *Agricultural land occupies 28.5 mln ha, including 23.4 mln. ha poor or low-productive pastureland and 4.2 mln. ha of irrigated land.*

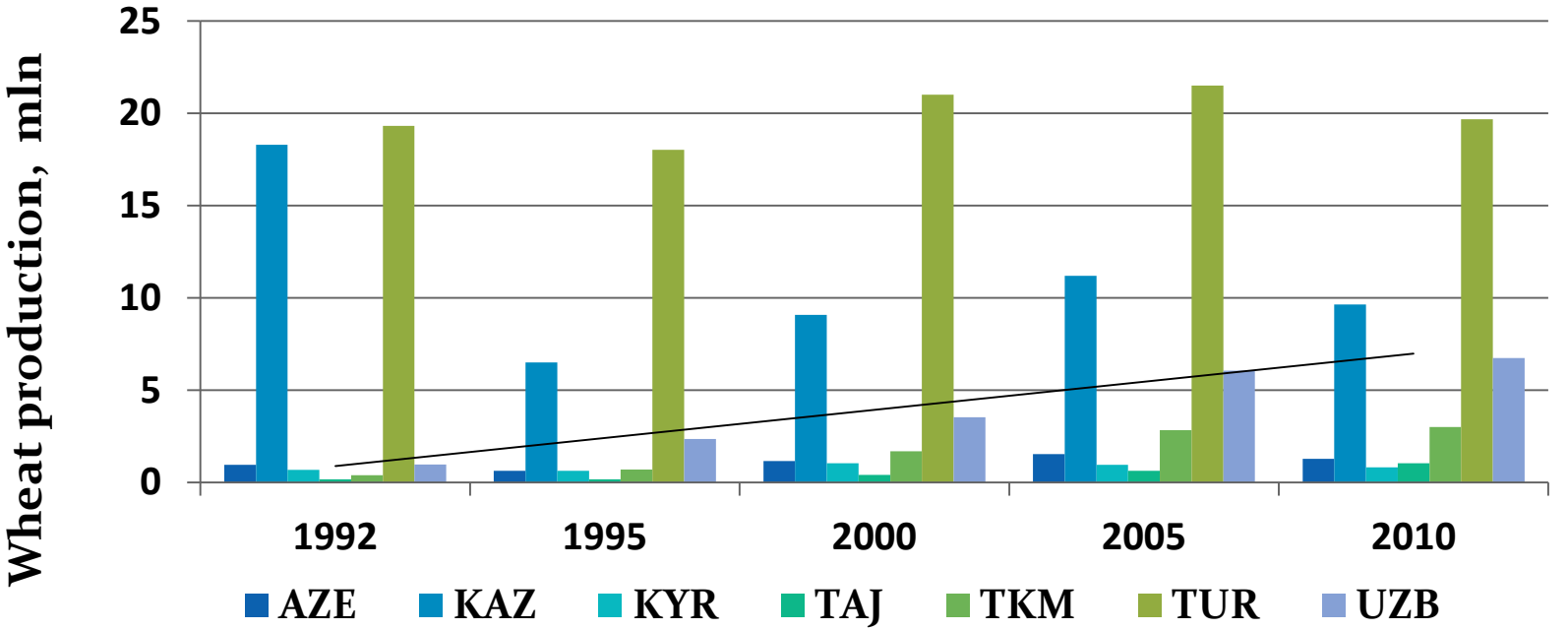
Current and emerging challenges



Source: FAOSTAT, 2014

- *During the last 25 years irrigated land per capita has declined from 0.22 to 0.12 ha.*
- *Competition for land and water is increasing*

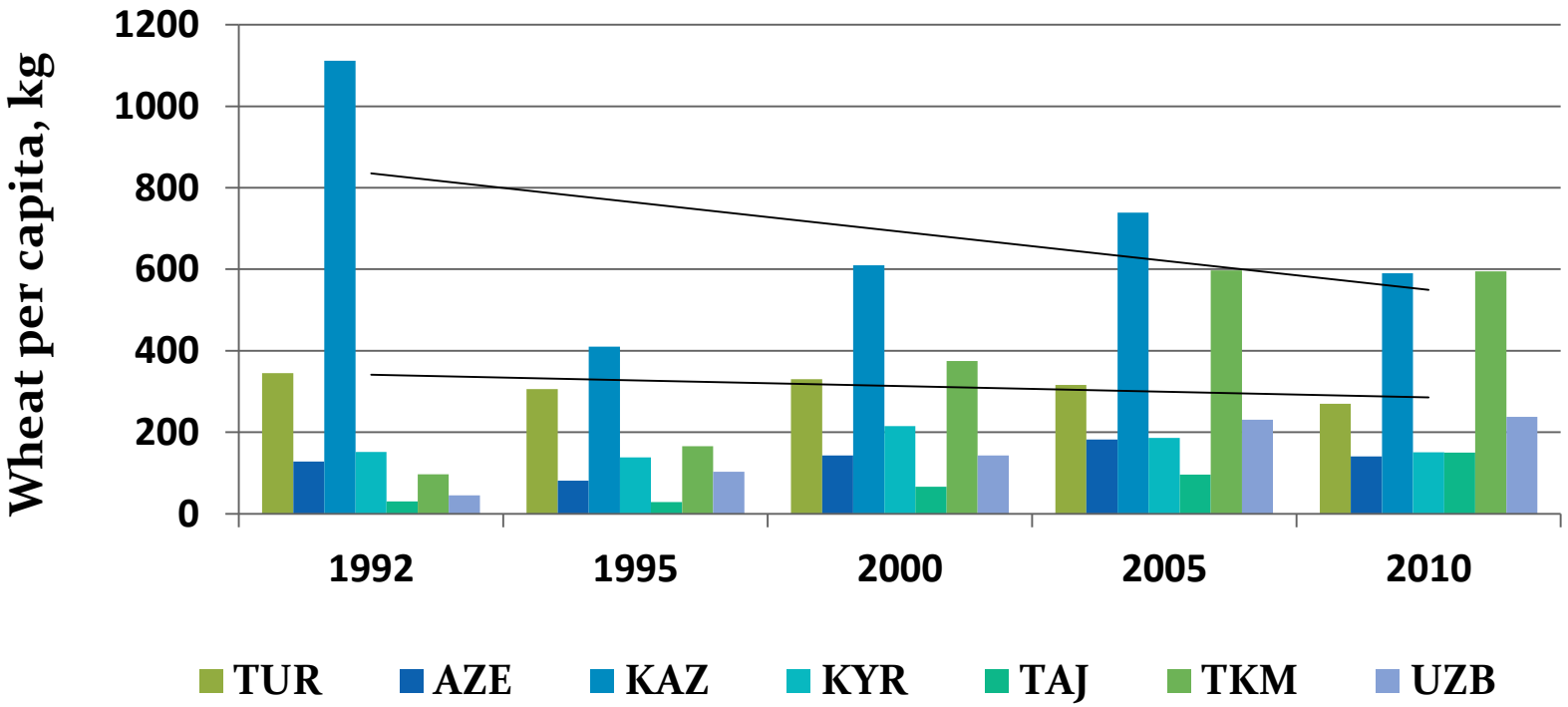
Current and emerging challenges



Source: FAOSTAT, 2014

- *Cotton and wheat are the main crops grown on 42.2% and 41% of irrigated land respectively*
- *Production of wheat is increasing*
- *Highest wheat consumption rate > 200 kg/year*

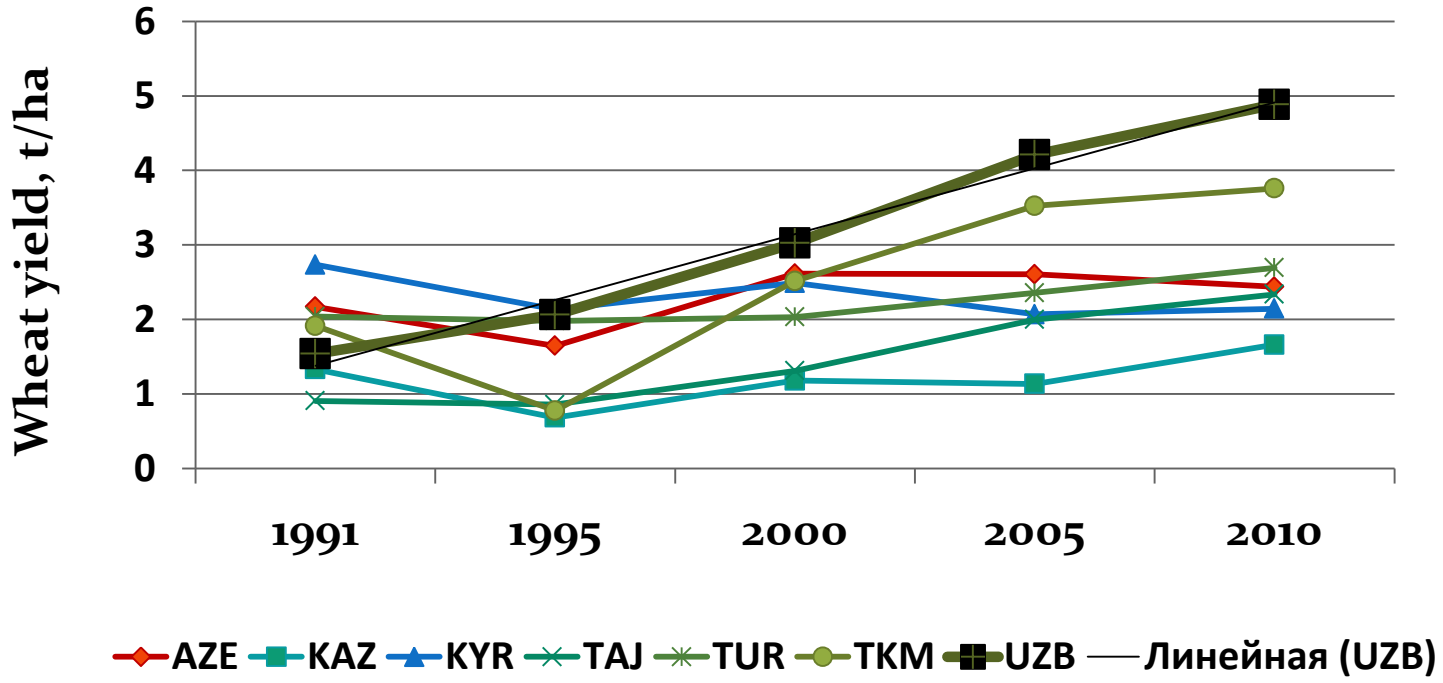
Current and emerging challenges



Source: FAOSTAT

Wheat production per capita in the region is declining, but not in Uzbekistan

Current and emerging challenges



Source: FAOSTAT, 2014

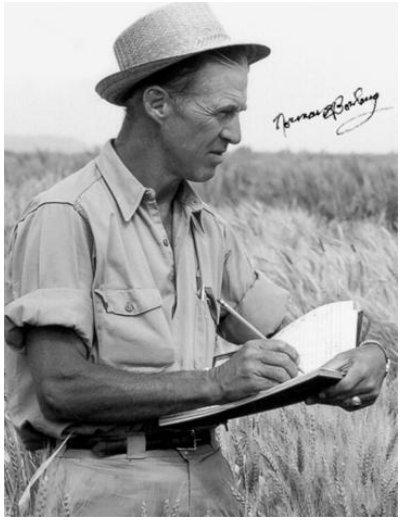
Wheat yield in the region remains low, although Uzbekistan has progressing

Current and emerging challenges

- Rising prices of inputs (fuel, fertilizer, seed, pesticides, etc.)
- Yield of main crops is declining due to climate change and lack of superior varieties
- Lack of institution capacity and legislation
- Generation gap and lack of qualified experts
- Lack of modern knowledge and technology
- Extremely seasonal character of work
- Poor farm-to-market infrastructure & post-harvest handling
- Limited purchasing power of domestic consumers
- …

Lessons learned

- Current intensive crop production practices cannot meet this challenge in a way that is sustainable
- The achievements of the first "Green Revolution" (1960-2010) came at significant cost:
  - Degraded land
  - Depleted groundwater
  - Pest upsurges
  - Eroded biodiversity
  - Air, water and soil pollution



Dr. Norman Borlaug

Lessons learned

Intensive cultivation of virgin lands led to the dramatic loss of soil fertility

FAO's response to the challenge

A POLICYMAKER'S GUIDE TO THE SUSTAINABLE INTENSIFICATION OF SMALLHOLDER CROP PRODUCTION

Save and Grow is a holistic approach to production

- Agricultural **land productivity**
- Natural capital and flow of **ecosystems services**

Simultaneously!

- Enhanced input-use **efficiency**
- Use of biodiversity – natural and managed (and carbon) to build farming system **resilience**
- Contribute to multiple outcome objectives at farm, community & landscape scales
- Capable of rehabilitating land productivity and ecosystem services

But how?

Sustainable Intensification and Diversification of Cropping System

- Development of policies and strategies on sustainable crop intensification and diversification of cropping system
- Drought preparedness and climate change mitigation
- Promotion of climate smart agriculture, e.g. conservation agriculture (CA)
- Capacity development

Conservation Agriculture - a core of Sustainable Crop Production Intensification

Conservation Agriculture (CA) is one of the best adaptation techniques in Lesotho context and it is accessible to all.
The principles of CA are:

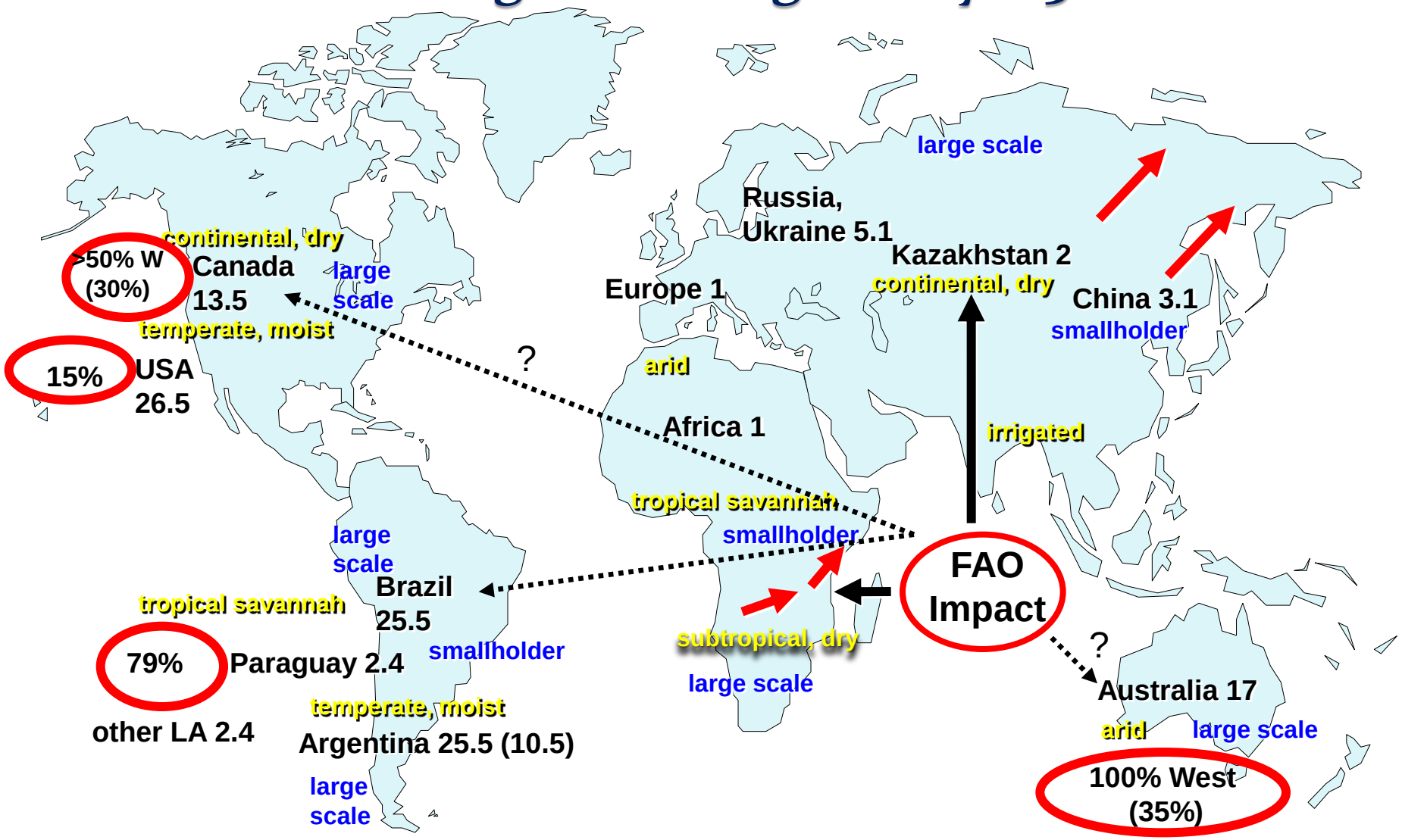
1 minimum soil disturbance.

2 permanent soil cover: crop residue or live mulch.

3 crop rotation and/or intercropping.

We need to change our current practices so we can produce more quantity and quality food while improving the soil in our fields.

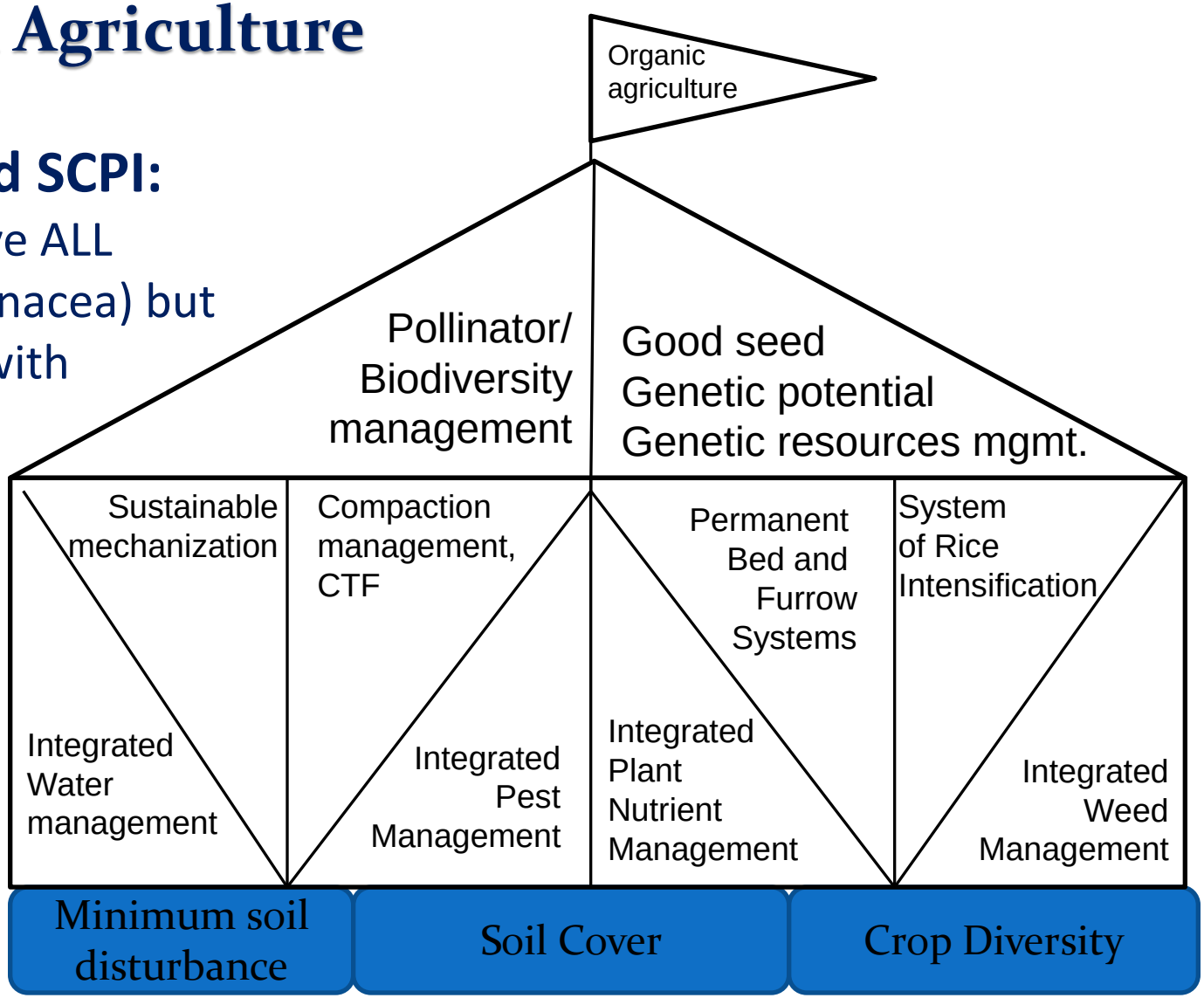
Conservation Agriculture globally 125 Million ha



Conservation Agriculture

The Concept and SCPI:

CA does not solve ALL problems (No Panacea) but complemented with other best practices CA base allows for high production intensity and sustainable agriculture in all systems.



FAO projects

TCP/UZB/2903 & 3102: Sustainable agriculture practices in the drought affected region of Karakalpakistan (2003-2007)

FAO projects

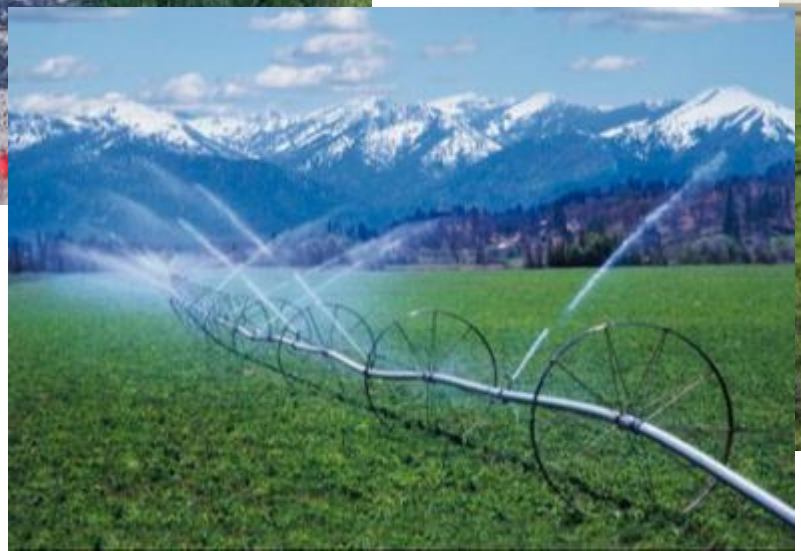
TCP/UZB/3001: Enhanced productivity of cotton-wheat systems through the adoption of conservation agriculture practices (2004-2006)

FAO projects

GCP/RER/030/TUR: Conservation Agriculture for Irrigated Areas in Azerbaijan, Kazakhstan and Uzbekistan (2011-2013)

Promotion of CA in gardening

Application of efficient irrigation techniques



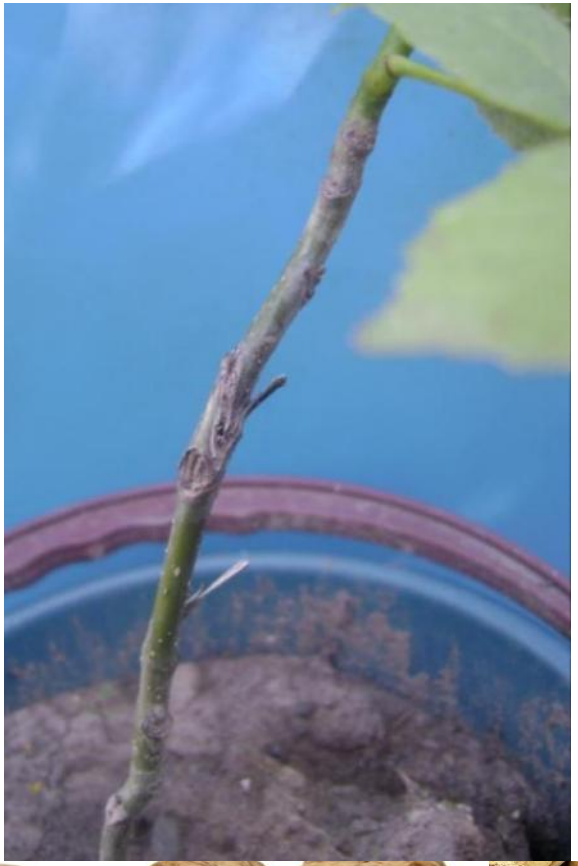
Development of pistachio, almond and walnut production

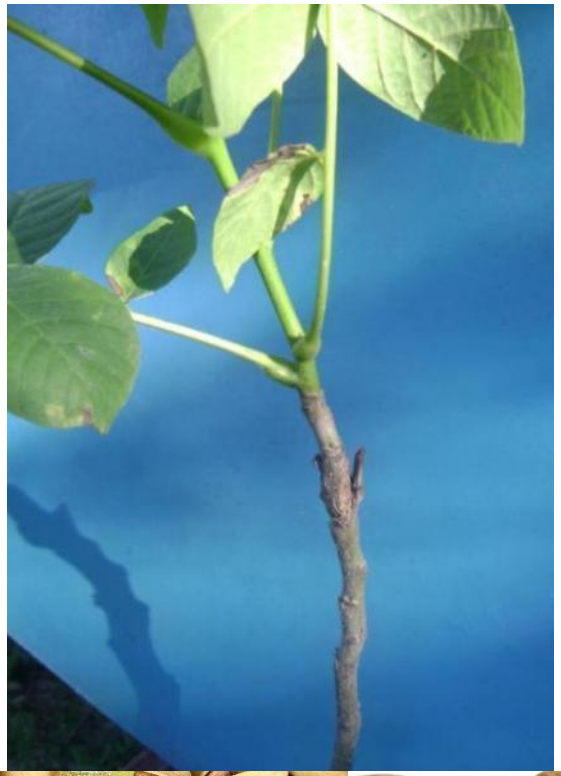
Potential expansion of dryland nuts production – 1 mln ha

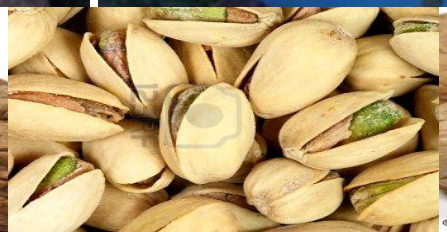
Rehabilitation of pistachio and almond plantations forests and plantations

Promoting of pruning and grafting techniques

Promoting of pruning and grafting techniques







Seed systems requires improvement

Better management of PGR and seed systems

- Formulation of Seed Policy and PGR Strategy
- Strengthening breeding programs
- Introduction of new varieties and hybrids
- Landraces *vs* modern varieties *vs* GMO
- Development of commercial seed production and marketing

- Strengthening seed quality control and certification, including seedlings and rootstocks
- Harmonization of legislation and standards
- Capacity building and institutional strengthening
- Membership to International Treaties and Conventions

Spread of plant pests and diseases (transboundary and quarantine)

Improving pesticide and obsolete pesticide management

Strengthening capacity of the National Plant Protection Organizations

- Strengthening policy on plant protection, implementation of international conventions and standards (e.g. ISPM), harmonization of regional phytosanitary legislation
- Developing capacities to control transboundary pests and diseases (e.g. locust).
- Monitoring, surveillance and control of pests and diseases (e.g. SMS monitoring)
- Training of young plant pathologists
- Ratification of International Conventions

Strengthening national frameworks for pesticide management

- Application of modern techniques, e.g. ULV application for locust control
- Improving pesticide registration and control system
- Registration of pesticides and pesticide applying equipment
- Inventory and disposal of obsolete pesticides
- Capacity building and institutional strengthening

Adoption and promotion of IPM

- Development of IPM programs and strategies
- Landscaping development
- Introduction of enthomophages
- Promotion of IPM quality control and certification, especially for greenhouse vegetable production
- Set up and development of FFS
- Introduction of bio-pesticides

Promotion of organic farming

- CA based organic production of fruits and vegetables
- Legislation, certification and quality control
- Efficient utilization of landraces and farmers varieties
- Enhancing organic market

Conclusions

- Uzbekistan is blessed with diversity of fruit and vegetable species
- Development of export oriented fruit and vegetable production
- “Save and Grow” can serve as an efficient tool for sustainable intensification of fruit and vegetable production
- Further development of sector requires the strengthening of policies and strategies
- Development of infrastructure, quality control and marketing
- Capacity building is a key for development
- Regional cooperation and collaboration with international partners to be strengthened

For more information please contact :

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