



THE CONCEPT OF THE RATIONAL USE OF MINERAL FERTILIZERS AND ITS REALIZATION IN RUSSIA

Svetlana IVANOVA

IPNI, Russia



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Ivanova Svetlana
Vice-President for Eastern Europe and Central Asia
IPNI - International Plant Nutrition Institute
E-mail: sivanova@ipni.net

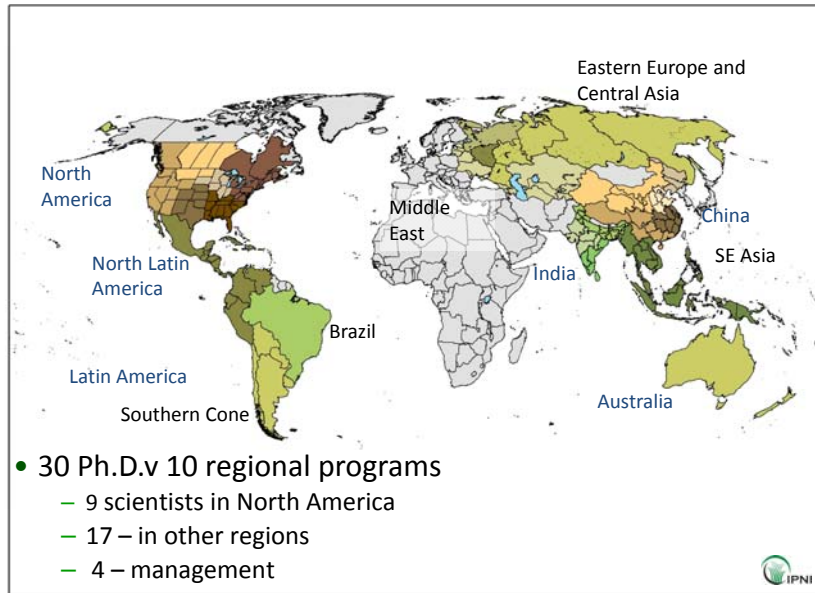
IFA Fertilizers & Agriculture Conference, October 8, 2009, Moscow

THE MISSION OF IPNI

“Development and dissemination of information about the importance of science-based use of mineral fertilizers for plant nutrition for the benefit of all mankind.”



Functioning programmes of IPNI



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FERTILIZER: An Investment For 2009 Crops

While baseball players are picking up bats and taking practice swings, all across North America there are farmers, crop advisers, fertilizer dealers, and others equally intent with pencils and calculators. There are tough decisions to be made soon for the 2009 crop season. There has been plenty of talk about price dictating 2009 cropping plans. Many crop producers have been holding off on decisions hoping for better prices: some are considering cutting back on phosphate or potash or both. There is no single answer that fits all circumstances, but it is important to remember that fertilizer is an investment that offers longer term benefits.

[Learn More](#)

The 4Rs:
Right Source, Right Rate, Right Time, Right Place

A new innovative approach to best management practices (BMPs) for fertilizer is the **Right Source, Right Rate, Right Time, Right Place** concept. It is also known as the **4R nutrient stewardship** concept. It can be applied to managing either crop nutrients in general (including organic sources) or fertilizers in specific. This concept can help farmers and the public understand how the right management practices for fertilizer contribute to sustainability goals for agriculture. In a nutshell, the 4R nutrient stewardship concept involves crop producers and their advisers selecting the right source-rate-time-place combination from practices validated by research conducted by agronomic scientists. Goals for economic, environmental and social progress are set by—and are reflected in performance indicators chosen by—the stakeholders to crop production systems.

Regional Program Websites

Select a Program

- North America
- India
- N Latin America
- China
- Brazil
- Southeast Asia
- Latin America-S Cone

Objectives of sustainable agriculture



Aspects of sustainable development associated with the use of fertilizers

- Food security
- Jobs
- Soil fertility
- The content of cadmium in soil
- Eutrophication
- Non-renewable resources
- Greenhouse gas
- Depletion of the ozone layer (N_2O)
- Air quality: ammonia, smog
- Water quality: nitrates, algae
- Public opinion

The tasks of sustainable agriculture



The concept of "4R"



IPNI
Better Crops, Better Environment
through Science

THE CONCEPT OF 4R

- The optimal form and dose of fertilizers; the time and the methods of introduction of fertilizers
- Combining science and practice to achieve stable results

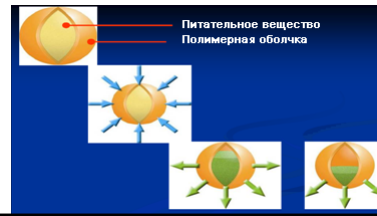


What are the proposals of the strategy of “4R”?

- Optimal forms, doses, timing and manner of introduction of fertilizers to ensure stable productivity.
- Rational use of fertilizers and improvement possibilities.
- A balanced approach in all four directions.
- Fertilizer producers: the role of distributors and suppliers.
- Availability of information

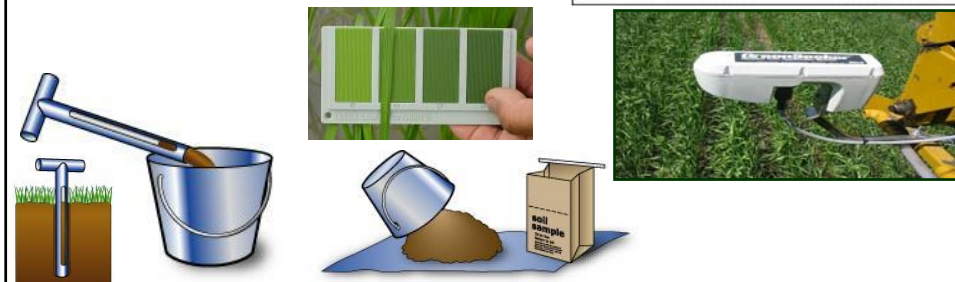
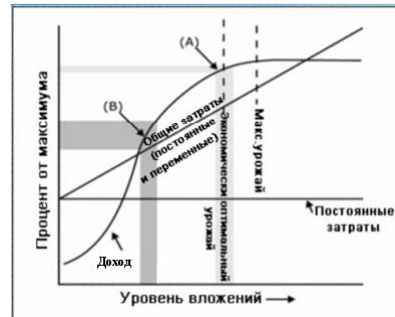
Scientific Principles: the form of fertilizers

- Balanced content of essential nutrients.
- Forms that are suitable to the plants.
- Correspondence to physical and chemical properties of soils.
- Be taken into account :
 - Synergism of nutrients and forms of fertilizers;
 - Compatibility of fertilizer mixtures;
 - Use of nutrient and non-nutrient (supplementary) elements.



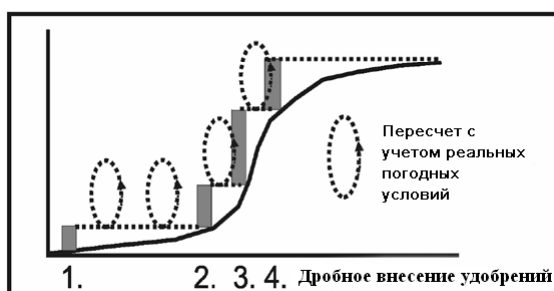
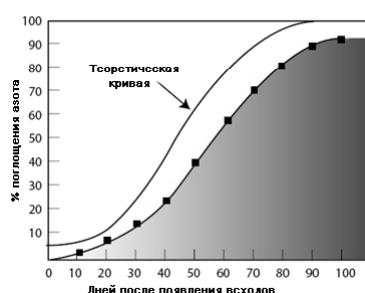
SCIENTIFIC PRINCIPLES: RATIONAL DOSES

- Assessment:
 - Of soil nutrients;
 - Of availability of nutritional elements deriving from all possible sources;
 - Of needs of the particular crops.
- Forecast of fertilizer use efficiency



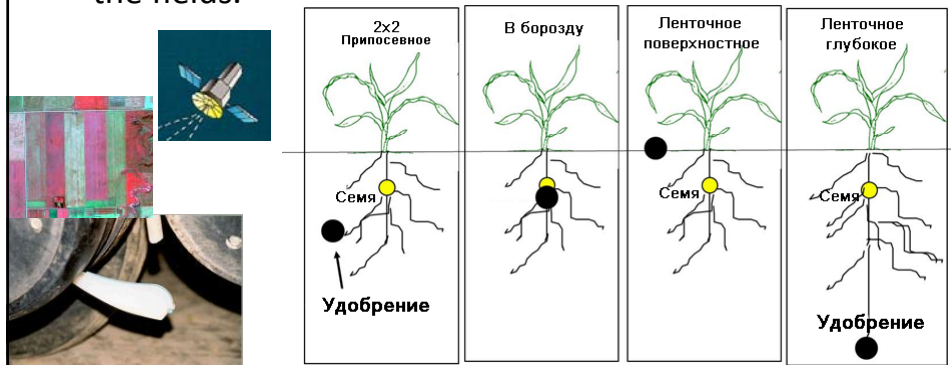
SCIENTIFIC PRINCIPLES : TIME OF INTRODUCTION

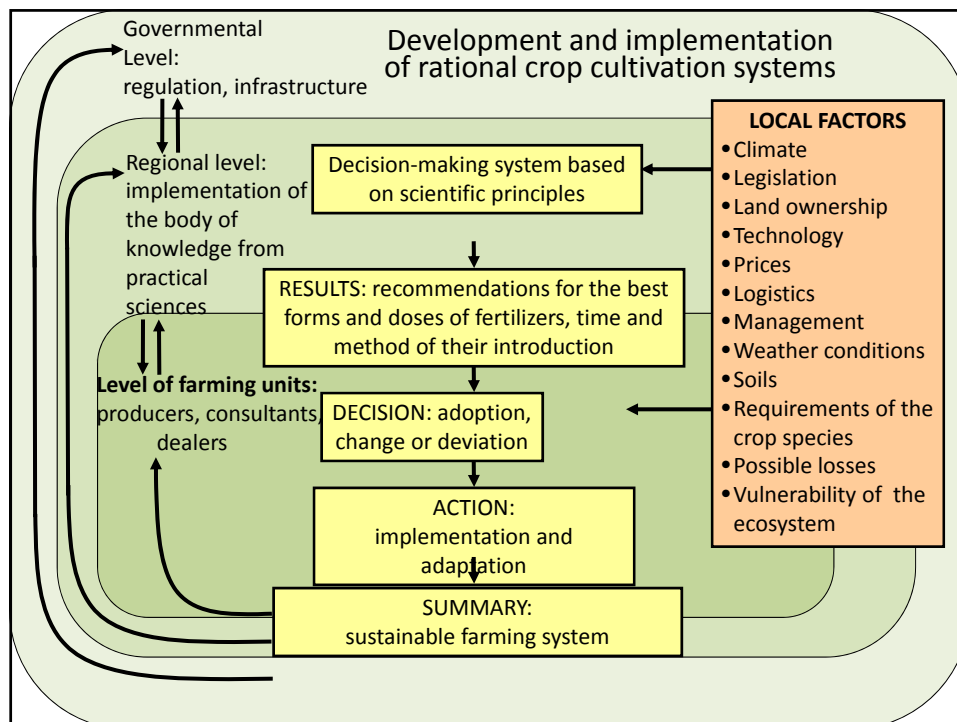
- Consideration for dynamics of absorption of nutrients by crops.
- Assessment of nutrients reserves in soil.
- Accounting for weather factors affecting loss of nutrients.
- Assessment of logistics for field operations.



SCIENTIFIC PRINCIPLES : METHOD OF INTRODUCTION

- Accounting for the spatial dynamics of a location of roots in soil.
- Accounting for heterogeneity of soil fertility.
- Reducing the possible loss of nutrients from the fields.





Implementation of a rational system of fertilizer use in Russia:

4 key regions for growing wheat (spring and winter):

- Central
- Stavropol and Krasnodar areas
- Tatarstan
- Western Siberia



Thank You for Your Attention!

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