

IFA International Workshop on  
Fertilizer Best Management Practices (FBMPs)

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**Global assessment of the situation on  
FBMPs:**

by

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**Agriculture is in the focus of the public**

**.... being accused**

- to contribute to global warming**
- to spoil the environment**
- to waste natural resources**

**We have to respond**

➤ **with facts and figures**  
**and**

➤ **with a forward looking**  
**Framework of activities**

**because the challenges are growing**

**The demographic changes ask for flexible adaptation of  
fertilizer use and recommendations**

- ▶▶ a growing global population needs more food
- ▶▶ urbanization is still advancing → more diverse diet
- ▶▶ the population is rapidly ageing → less calorific food, more veg and fruits
- ▶▶ growing demand for “environment-friendly”-food → more quality control
- ▶▶ growing demand for transparency and traceability in crop production → need for nutrient recording and auditing
- ▶▶ growing globalization in food trade → nutrient transfers across national borders and disrupted nutrient cycles at production sites
- ▶▶ the consumer want to impose their local statutory rules and regulations to farmers abroad

**... the same applies for the agronomic changes**

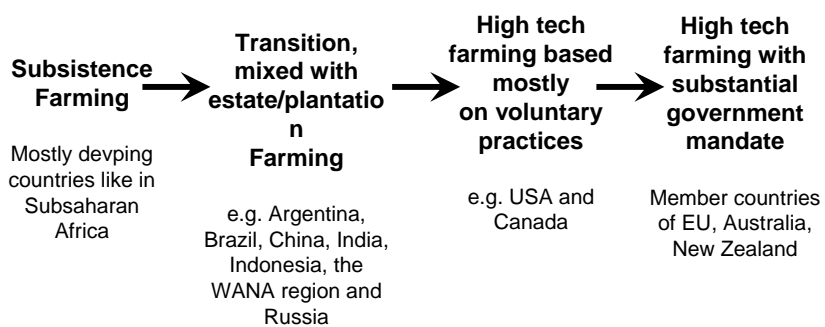
- ▶▶ Cropping area is declining → need for increasing productivity to compensate for land loss
- ▶▶ Declining access to irrigation water → need for increasing nutrient efficiency
- ▶▶ Increasing land degradation and declining water table
- ▶▶ Declining land productivity → need to replenish soil nutrient reserves
- ▶▶ Problem of high degree of wastage of agricultural produce
- ▶▶ Emerging competition for land → energy vs food crops
- ▶▶ Labour shortage → need to develop smart inputs

**The increasing political and public pressure on agricultural production implies the need for proactive action (FBMPs) rather than waiting for regulations**

**Can the existing recommendations  
cope with the rapidly changing challenges ?**

**Current situation in nutrient management  
and fertilizer recommendation**

There is a wide variation in the global farm and thus nutrient management



### **Current situation in nutrient management and fertilizer recommendation**

Farm and nutrient management of subsistence farming can be characterized as follows:

- Mostly blanked and outdated fertilizer recommendations
- no control mechanisms to monitor the risks to the environment
- fertilizer availability is highly uncertain in time, quality and quantity
- mostly high-concentration straight fertilizers
- lack of funds, unfavorable price/cost ratios restrict fertilizer use
- fertilizer use itself is mostly unbalanced because of lack of knowledge, poor advice, irregular supply, restricted fertilizer spectrum, too low application rates
- often absence of fertilizer law

### **Current situation in nutrient management and fertilizer recommendation**

Farm and nutrient management in transition, often mixed with estate/plantation sector show the following feature:

- more care is taken to estimate the nutrient budget, but the balance is often inadequate because of high nutrient export with sold crop
- food crops are frequently under-fertilized
- management of crop residues is not well developed
- on the other hand, the advisory service of the private sector is improving, not so much the public sector
- there are site- and crop-specific nutrient recommendations based on field trials available although access to soil and plant tests are still limited
- the availability of the N, P, K straight fertilizers is improving in contrast to mixed, customized fertilizers and those containing secondary and micronutrients
- there are still legislative restrictions in approval of new material and formulas

### **Current situation in nutrient management and fertilizer recommendation**

High tech farming based mostly on voluntary practices operate under the following conditions:

- farmers aim for sustainable maximum production, considering both yield and quality
- much care is taken to estimate the nutrient budget and to maintain a well balanced fertilization
- environmental aspect gaining increasing attention, e.g. by better synchronizing nutrient supply with crop demand
- considering nutrient supply from organic sources becomes common practice
- site- and crop-specific fertilizer recommendations and the corresponding soil and plant test are readily available
- precision nutrient management is being rapidly adopted
- the usually high educational level of farmers and the wide spectrum of information as well as the very good availability of high quality and customized fertilizers support the efforts to apply nutrients right in time, in rate, in form and in place

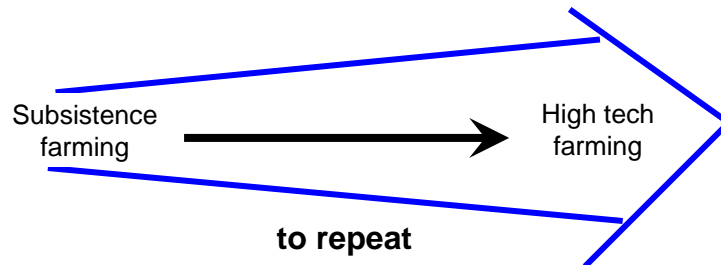
### **Current situation in nutrient management and fertilizer recommendation**

High tech farming with substantial government mandate:

The basics in nutrient management, fertilizer availability, advice and use etc are very much the same as described before

- however, increasing social and administrative pressure and statutory regulations
- the crop production has to be compatible to the environment
- the production of “healthy” food goes even to the expense of yield
- fertilizer use is time and quantity wise under strict control, overshooting of admitted amounts of N and P gets fined
- documentation and monitoring of nutrient use and movement becomes mandatory
- environmental groups getting more involved in formulating nutrient management
- the integrated approach in farm and nutrient management, i.e. the integration of plant protection, irrigation, animal husbandry, social welfare etc becomes more common

## Current situation in nutrient management and fertilizer recommendation



There is according to the developmental stage of farming a great variation in:

- nutrient management
- fertilizer recommendation
- fertilizer availability, use and efficiency

and consequently

- a great variation on its impact on the environment, natural resources, food health

which leads to

- emerging governmental intervention and
- growing public suspiciousness

## Future need in nutrient management and fertilizer recommendation

**In order**

- to better monitor the impact of nutrients on the environment
- to provide farmers with a quality management system and thus
- to meet the demand of the public for transparency and traceability in the food/feed production

**do we need a kind of**

**“code of conduct”**

**with respect to nutrient management and fertilizer use ?**

**Future need in nutrient management and  
fertilizer recommendation**

can a

**“Code of FBMP” or a “Framework”**

be the solution ?

- globally applicable to speak with one voice
- as a basis to develop local site- and crop-specific FBMPs
- as a reference for decision makers in formulating land management policies
- as a proof to take care on the environment and natural resources
- and as an evidence of the industry's and farmer's social consciousness ?

**Future need in nutrient management and  
fertilizer recommendation**

**Demands and expectations from the  
public and the legislation**



**Code of FBMP  
the Framework**

Local FBMP  
region x

Local FBMP  
region y

Local FBMP  
region z

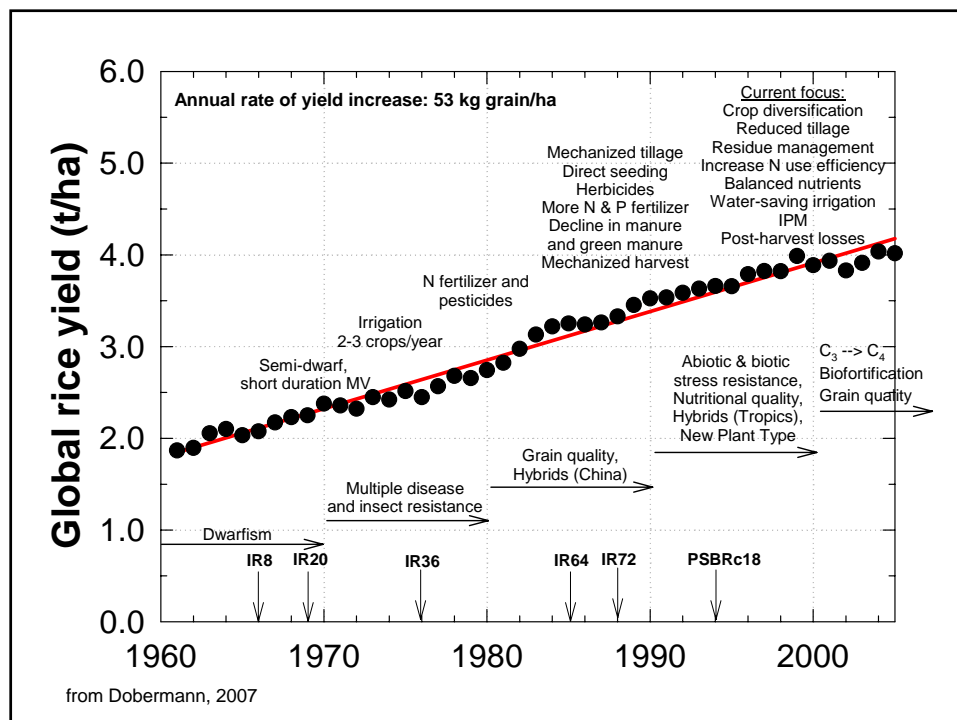
**The regional agri-business (farmers, industry etc)**



## Future need in nutrient management and fertilizer recommendation

**A Code of FBMP should consider the following :**

- it should integrate nutrient management with related agri-disciplines (e.g. irrigation, pest and disease management ...)
- it should result from a concerted action by all stakeholders (fertilizer industry, government, research, extension, farmers, environmental groups ...)
- it should contain provisions for training (farmers and dealers), monitoring, auditing in order to be traceable and transparent in its operational activities
- it should be a living document, flexible and ready for revisions and updating and based on good research and sound data



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### **Future need in nutrient management and fertilizer recommendation**

**There is a range of local FBMPs already issued  
for example**

## Future need in nutrient management and fertilizer recommendation

### The Australian *Cracking the Nutrient Code*:

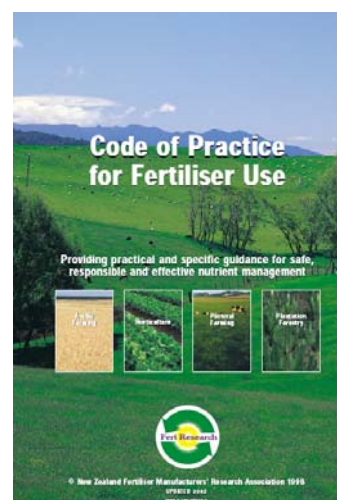
- “is a set of guidelines to help individual industries and regions to develop their own specific *Nutrient Management Codes of Practice*”
- it assists to *comply with Quality Assurance Programs* in order to get access to many high value markets
- it is developed by
  - Farmer organizations
  - Industry organizations
  - Research organizations
  - Resource management organizations
  - Local, state and federal governmental deptt
  - Landcare and catchment management groups
- the outcome by using the guideline can help to maximize the efficient use of nutrients which will
  - minimize the environmental impact, and
  - increase production efficiency



## Future need in nutrient management and fertilizer recommendation

### The New Zealand *Code of Practice for Fertiliser Use*:

- it aims to enhance good agricultural practices among farmers
- it makes a positive contribution to the adoption of sustainable land management policies and activities
- it enables individuals to undertake farm nutrient management that is specific to their unique situation within an effective decision making framework
- it enables a participatory, non-prescriptive approach
- the options for fertilizer use are based on the following principles
  - to maintain or enhance production
  - to reduce the level of production risks
  - to protect natural resources and prevent degradation of soil and water quality
  - to be economically viable
  - to be socially acceptable



## Future need in nutrient management and fertilizer recommendation

### **The French Code of Reference for Integrated Farming:**

- *the integrated farming approach is based on the following principles*
  - overall management of the farm
  - traceability of farming practice
  - crop production
  - animals
- the Code lays down a range of demands relating to environmental, hygiene, health, safety at work and animal welfare issues
- it is essential that the Code be upgradeable to keep pace with the ongoing situation

LE RÉFÉRENTIEL DE  
L'AGRICULTURE RAISONNÉE  
(France)

### **THE FRENCH CODE OF REFERENCE FOR INTEGRATED FARMING**

Adopté par le Conseil Supérieur  
d'Orientation et de coordination de  
l'économie agricole et alimentaire  
(CSO) du 8 janvier 2002

## Future need in nutrient management and fertilizer recommendation

### **The German Fertilizer law (DüV):**

- *a very prescriptive and restrictive law*
- *regulating in details when, how and how much fertilizers can be applied*
- *overshooting of the given upper limit is considered as an offend and will be fined*

Bekanntmachung der Neufassung  
der Düngeverordnung  
vom 10. Januar 2006

**Verordnung über die  
Anwendung von  
Düngemitteln,  
Bodenhilfsstoffen,  
Kultursubstraten und  
Pflanzenhilfsmitteln nach  
den Grundsätzen der guten  
fachlichen Praxis beim  
Düngen**

## Future need in nutrient management and fertilizer recommendation

### **The European Integrated Farming Framework:**

- for the individual farmer, it offers a management tool which may help to further raise awareness, to continually improve everyday practice on farm and hence achieve economic, environmental and social progress
- for politics and administration, the Framework presents a definition and characterization of Integrated Farming, giving the basis for a common understanding and to be applied all over Europe



## Future need in nutrient management and fertilizer recommendation

### **The UK Whole Farm Nutrient Plan:**

- Consumers and politicians have an interest in food quality and environmental protection and are being more aware of production methods
- after considering all points of the documents, growers should be able to improve the efficiency of nutrient use on farm and still achieve optimum crop yields and limit losses to the environment



## Future need in nutrient management and fertilizer recommendation

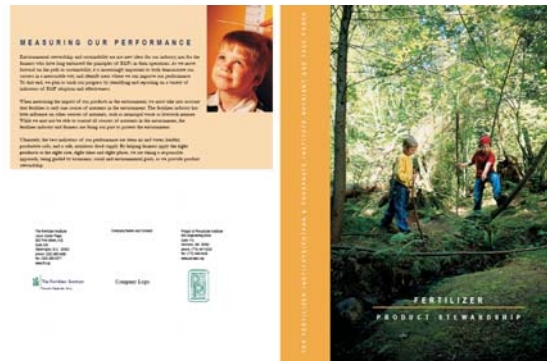
### The TFI/PPI Fertilizer Product Stewardship:

#### ➤ Best management practice

- right product
- Right time
- right place
- right rate

#### ➤ Stewardship goals

- environmental
- economic
- social



## Future need in nutrient management and fertilizer recommendation

### Of course, there are a range of definitions concerning FBMP:

- practices to use fertilizers in a way that are efficient, reduce cost of production and protect the environment
- application of best available ... methods that are socially, economically and technically feasible for maximizing FUE and minimizing adverse impacts
- a set of good practices aimed at optimizing agricultural productivity while protecting the environment
- balance use of fertilizers from organic and inorganic sources for maximum economic productivity and minimize soil health erosion
- good agricultural practice
- practices which have been proven in research and tested thru farmer implementation to give optimum production potential, input efficiency, and environmental protection

## **Future need in nutrient management and fertilizer recommendation**

### **In general, the FBMPs have the following objectives:**

- to create understanding and awareness about the fate of nutrients, the risks linked to nutrient use, the potential for environmental pollution and the misuse of natural resources (*risk factors = leaching, accumulation, run off and erosion, atmospheric losses and mining*)
- to consider the risks associated with operational activities (*risk factors = transport, loading/unloading, storage, application*)
- to consider the risks associated with agronomic activities (*risk factors = rate, timing, form, placement*)
- to consider environmental targets (*groundwater, surface water, soils, neighborhood, biodiversity, air, farm produce*)

## **Future need in nutrient management and fertilizer recommendation**

### **The benefits of having FBMPs are obvious:**

- they contribute to economize and optimize fertilizer use
- they contribute to wealth creation by developing and implementing new management techniques to maximize the agricultural potential in a sustainable way
- they will lift nutrient research to a new level – world best practice
- they will contribute to a better understanding of the relationship between nutrient management and land use dynamics
- they will improve the relationship between farmer and consumer by creating confidence thru transparent operations
- and they will also increase the confidence in the fertilizer industry as a sector that takes care on the economic expectation of their client and on the environmental concerns of the consumer

## Future need in nutrient management and fertilizer recommendation

### Nevertheless, we should have a common *Code of Conduct*:

- a document called "**Code of FBMP**" which by its design cannot and will not replace local fertilizer recommendations/FBMPs but assist to develop them based on scientific facts and according to the site- and crop-specific conditions
- we should try to formulate in a concerted action a document in which we demonstrate the efforts to make best use out of the fertilizers in terms of income generation, protection of the environment, political responsibility and social acceptance
- by integrating education and training, the **Code of FBMP** will also contribute to improve fertilizer use and its efficiency in regions where fertilizer recommendations are still in a premature stage

## Future need in nutrient management and fertilizer recommendation

### Nevertheless, we should have a common *Code of Conduct*:

- Like the industry having ISO standards to make production, supply and service safer, more efficient and environmental friendly, we should have comparable standards and audit mechanisms, a kind of quality management system
- by participating the government in developing the **Code of FBMP** perhaps we can prevent the issue of stringent, disproportionate and exaggerated statutory directives and regulations with respect to fertilizer use
- a **Code of FBMP** will demonstrate the commitment of the fertilizer industry and farmers towards societal aspects like environment, natural resources
- and last but not least, the **Code of FBMP** could assist to put more trust into the rural community and its related agri-business



**Future need in nutrient management and  
fertilizer recommendation**

Nevertheless, we should have a common *Code of Conduct, i.e. a*

***Code of FBMP***

***Thank you***