

Global Minor Use Summit, Rome, December 3-7, 2007

Minor Uses – a seed industry perspective

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Outline

- **Introduction**
- **Protecting Seed via Seed Treatment (ST)**
- **Economics of Seed Treatment**
- **ST and Minor Use Programs, examples**
- **Benefits of Authorizing Plant Protection Products for Minor Uses**
- **Proposed Regulations for ST – a Wish List**

Introduction

- **ISF** (International Seed Federation)
 - **Non-governmental, non profit organization representing seed industry worldwide**
 - **Members from >70 countries**
 - **Representing mainstream of world seed trade and plant breeding community**

Introduction

- **STEC** (Seed Treatment and Environment Committee)
 - Working group of IFS with members from seed companies, applicators and crop protection industry
 - Exchange of information regarding seed treatments (ST) within seed industry
 - Creating awareness about good use of ST outside seed industry
 - Publications on „www.worldseed.org“






Protecting Seed via Seed Treatment (ST)

- **Brief overview: Evolution of ST**

- **2000 B.C.: soaking techniques (leek sap, others), treatment with ashes**
- **Middle ages: soaking in chlorine salts and manure**
- **1750's: first use of copper salts, arsenic (banned in 1808) and hot water treatment**
- **1915: introduction of organo mercurics (banned in 1980's in Western Europe)**
- **1960's: first systemic fungicides**
- **1990's: new modern fungicides and insecticides**

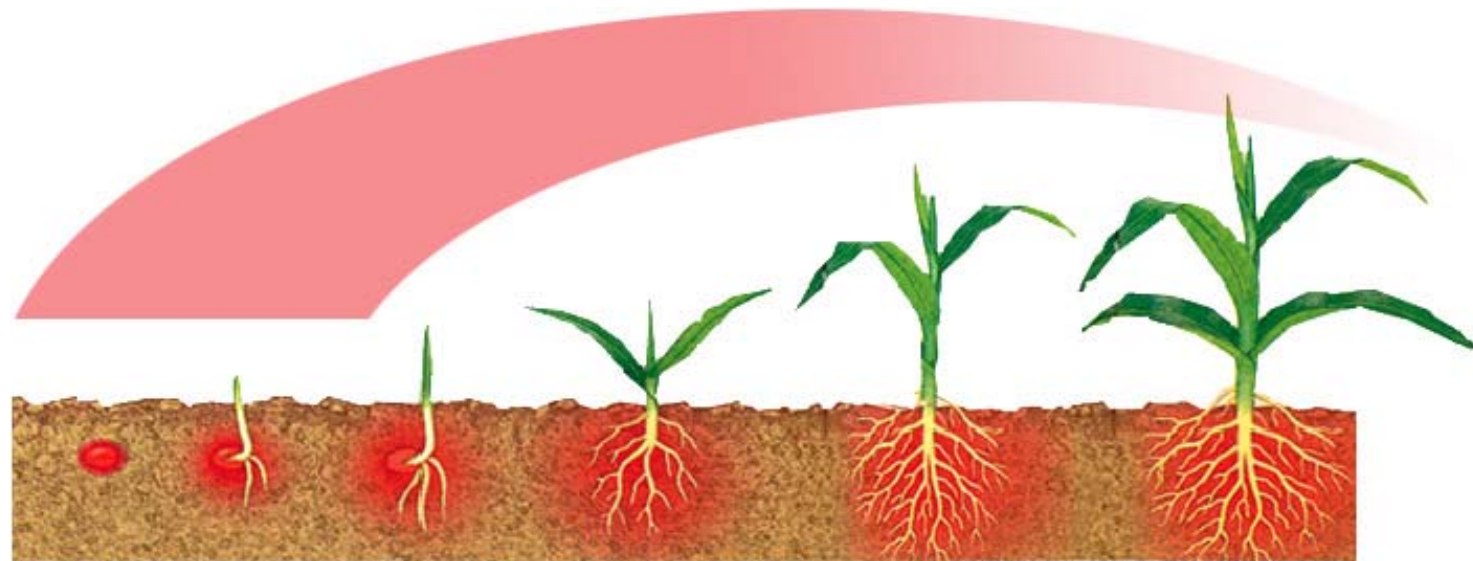
Protecting Seed via Seed Treatment (ST)

ST Application today - Technologies and Definitions

	Seed Dressing	Seed	<ul style="list-style-type: none"> - True seeds (e.g. cereals, corn, cotton, sugar beet, vegetables) - Tubers (e.g. potatoes, ...) - Bulbs/Corms/Cloves (e.g. tulips, garlic, ...)
	Film Coating	Products	<ul style="list-style-type: none"> - Insecticides - Fungicides - Biological control agents - Others (e.g., micronutrients, filmcoatings, enhancing agents...)
	Pelleting	Treatment	<p>Application of products to seed via:</p> <ul style="list-style-type: none"> - Spraying (liquids) - Dusting (solids) - Dipping/soaking (in liquids) <p>using appropriate machinery and technology</p>
	Pelleting + Coating	Timing	<ul style="list-style-type: none"> - Before sowing or planting
	Multilayer Coating		

Protecting Seed via Seed Treatment (ST)

Benefit: Double protection for the seed and the plant (e.g. corn)



Wireworms

Cut worms

Other soil pests

Aphids = carriers of viruses

Leafhoppers

Corn rootworms

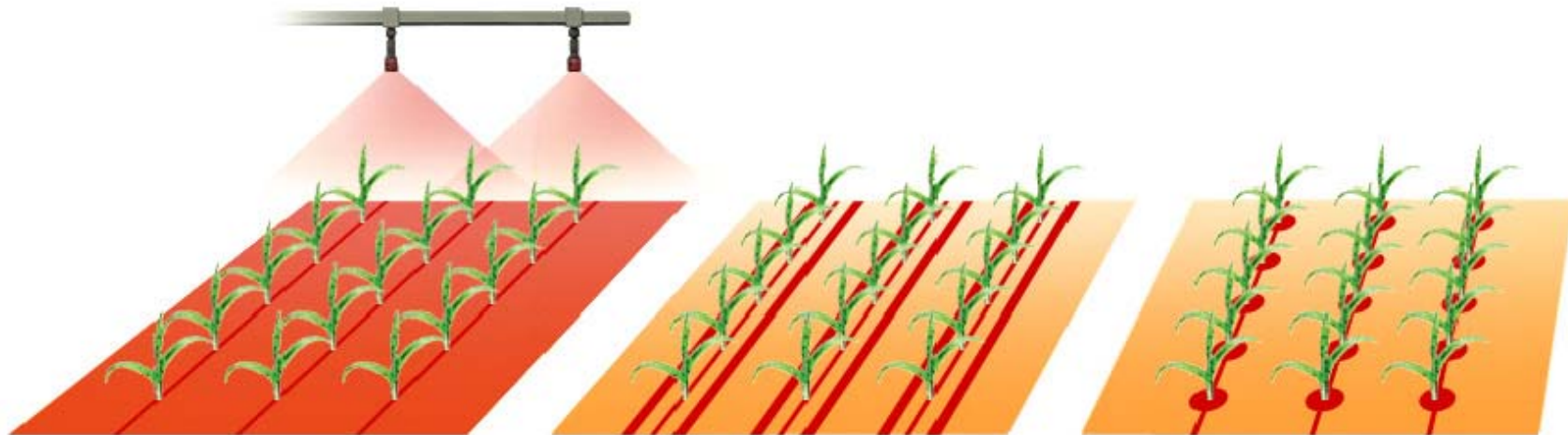
Protecting Seed via Seed Treatment (ST)

Benefit: Reduction of application rates by using ST

Treatment of whole area (spray)

In-furrow treatment with granules

Seed treatment



Application rate

g ai/ha: 1.350

600

125

Treated area

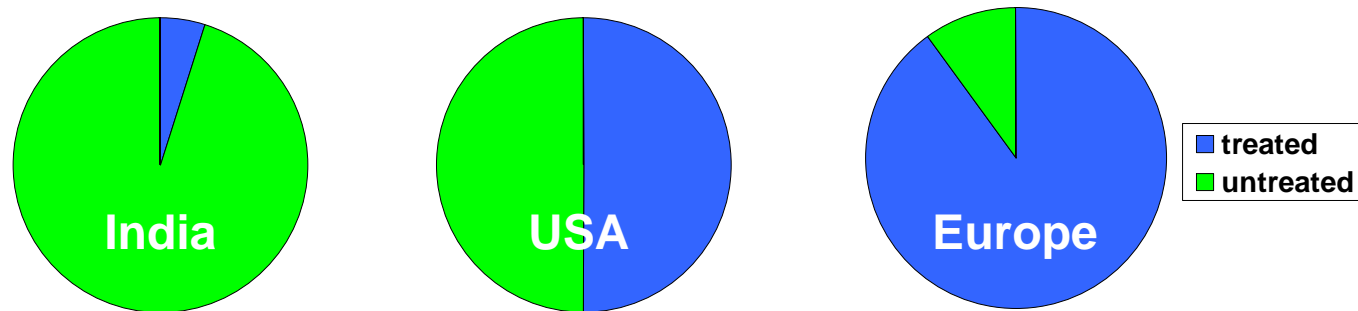
in m²: 10.000

500

58

Economics of Seed Treatment (ST)

- **2007: ST market worth 1.5 billion EURO**
- **Global growth per annum: 5%**
- **Global seed market: 5% of total crop protection market**
 - 48% fungicides
 - 41% insecticides
 - 11% mixed
- **Higher value crops experience higher adoption rates (e.g. sugar beet, corn, vegetables)**



Percentage of treated seed (blue) in different areas of the world

Economics of Seed Treatment (ST)

e.g.: Selected EU outdoor vegetable production

Crop	Area sown [ha]	Value of seeds [Mio EURO]	Production value [EURO]
Brassica	100.000	65	1.48 billion
Carrot	75.000	40	310 million
Onion	100.000	30	250 million
Lettuce	100.000	50	1.12 billion
Total		185	3.06 billion

Seed Treatment and Minor Use

- **Example Germany („Lückenindikation“)**

Possibilities to close minor uses gaps (PflSchG/PPA)

- **§ 11** authorization of not registered plant protection products (PPP) in case of expected hazard („Gefahr im Verzuge“)
- **§ 15** authorization procedure
- **§ 18, 18a** special approval procedure (BBA) for extending of uses of an authorized PPP
- **§ 18b** special minor use procedure for a personal approval of a PPP for very minor uses only

Seed Treatment and Minor Use

Germany: examples for approvals for seed treatment

Active(s)	Pest(s) / Disease(s)	Crops
thiram	damping-off (<i>Pythium</i>)	Sweet corn
propamocarb	downy mildew	Radish
imidacloprid	aphids, flea-beetles	Cauliflower, Broccoli, Brussels sprout, swede, Eindivie, Lettuce
imidacloprid	onion fly, thrips	Leek
cyprodinil + tebuconazole + fludioxonil	anthracnose	Lupins

(data provided by M. Wick, BBA, 2007)

Seed Treatment and Minor Use

- **Example UK („SOLAs“)**

e.g.: Selected active ingredients approved for „off-label use“

Active(s)	Pest(s) / Disease(s)	Crops
thiram	damping-off (<i>Pythium</i>)	Popps, Garlic, Shallot, Lupin, Rhubarb, Swede Cress, Endivie, Frise, Lettuce, Radicchio, Scarole
tefluthrin	bean seed fly	Angelica, Balm, Basil, Bay, Borage, Burnet (salad), Camomile, Caraway, Chard, Chervil, Chives, Clary, Fenugreek, Feverfew, Green mustard, Hyssop, Fennel, Coriander, Dill, Land cress, Lemon verbena, Lovage
imidacloprid	aphids	Broccoli, Brussels sprout, Cabbage, Calabrese, Cauliflower, Chinese cabbage, Choi sum, Collard, Kale, Pak Choi, Frise, Lambs lettuce, Lettuce, Radicchio, Scarole
fludioxonil	not listed	Durum wheat, Rye, Triticale

(excerpt from „www.pesticide.gov.uk“, 2007)

Seed Treatment and Minor Use

- **Example US (IR-4)**

- EPA 2005 IR-4 Annual Report:

- seed treatment products under evaluation in close contact to chemical industry include abamectin, boscalid, clothianidin, fipronil, fludioxonil, mefenoxam, methomyl, pyraclostrobin, oxamyl, thiamethoxam

- IR-4 Strategic Plan 2006-2008:

- start of a „Seed Technology Program“ that assists in the registration of products as seed treatments

Benefits for Authorizing Plant Protection Products for Minor Uses

- Free movement of seeds for seed and genetic production
- More productive (more competitive) and more sustainable agriculture
- Resistance management
- Key factor for improvements both in farming and plant breeding on minor crops
- Limited amounts in ST = benefits for environment, public health, economics

„Seed technology has recently emerged as the preferred mechanism to deliver crop protection chemicals where they can be most effective and provide the greatest benefit while reducing the chemical load in the environment“

(IR-4 Project, Strategic Plan 2006-2008)

Proposed Regulations for Seed Treatment – a „Wish List“ of the Seed Industry (part I)

- **Include specific provisions for ST as well as for Minor Uses in legal framework (e.g. 91/414/EEC)**
- **Create a system of funding for the approval of Minor Uses in Europe**
- **Improve authorization procedure for ST; easy, fast and inexpensive system for registering of PPP for use as ST**

Proposed Regulations for Seed Treatment – a „Wish List“ of the Seed Industry (part II)

- **Centralized and harmonized authorization procedure as a common standard (e.g. in EU) or automatic mutual recognition of authorizations (could encourage companies to file small-scale applications)**
- **Cross recognition of Agencies - EPA, EEC**
- **Minor Uses should be considered in regulatory review and registration process for established active ingredients to maintain uses that present acceptable risk**

**Thank you for your
attention!**



International Seed Federation