



Responsible Use of Crop Protection

Syngenta Case Studies & Activities

FOOD FORUM INDIA

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Sawatenter Khosla

Vice President Corporate Affairs



Today's discussion

Syngenta and IPM around the world

Syngenta crop protection stewardship efforts in India

Syngenta initiatives in developing a safe and secure fruit and vegetable supply in India

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Protecting Human Health and the Environment

Human risk assessment is about protection of the individual **Healthy people**

Health assessment and toxicology



Protecting health in manufacture



Protecting health in application



Healthy food



Environmental safety

Sustainable agriculture



R&D results in improved safety profile

Period	Avg. Use rate/ha	Toxicology profile (Acute Toxicity)	Examples
<1980	0.5 – 1.0 Kg/ha	0 – 100 mg/kg bw	Organochlorines Organo Phosphorus, Carbamates
1980-1990	0.05 – 0.15 kg/ha	100 – 500 mg/kg bw	Synthetic Pyrethroids
1990 - 2000	0.005 – 0.1 kg/ha	100 – 5000 mg/kg bw	Neonicotinides, Avermectins, Pyrrole, Imida & Thia
2000 - 2005	0.001 – 0.050 kg/ha	> 5000 mg/kg.bw	Bisamides – flubendamide & CTPR; Galaxy

➔ **Emphasis on low active per unit area and low mammalian tox**

ICM / IPM are integral to syngentas Way of working with the farmer - Responsible use of Crop Protection products

- **Sustainability is a vital part of our strategy because ...**
 - Over \$ US 800 mil investment in R&D annually from which revenues will be realized far into the future
 - A sustainable and vibrant farming community is essential to meet our business objectives
- **IPM is a key contributor to sustainable agriculture and Syngenta is investing in this area by ...**
 - Developing new and better products (target specific, lower ai use rates and less disruptive to the farm ecosystem)
 - Providing services to minimize intervention (threshold versus program sprays, better application, scouting and decision support services)

Case 1: Syngenta is Supporting Thai Growers Exporting Produce to Japan.

Issues	Solution	Result
<ul style="list-style-type: none"> - Ensure Okra, asparagus and sweet corn grown in Thailand meets Japan import requirement around MRLs and quality - Lack of grower understanding and need for training - Growing problem of pesticide container disposal management 	<ul style="list-style-type: none"> - Work with Taniyama agronomists to train farmers on proper application of pesticides and threshold spraying. - Conduct pesticide residue trials to determine best GAP practices that minimize residues. - Help support development of protocols that contain the best GAP that minimizes residues and maximizes quality. - Introduce the best varieties that suit Japanese customer's needs. 	<ul style="list-style-type: none"> - Good compliance and production of produce that meets Japanese requirements. - Scale up to train 2000 farmers over the next 3 years. - Replication of best practices in other crops. - Integration of pesticide container management into CropLife Asia project.



Case 2: Syngenta Participates in SupHort Project in Vietnam

Issues	Solution	Result
<ul style="list-style-type: none">- Variable market prices for watermelon farmers- Difficulty for retailers to access consistent supply of quality produce that is „safe“.- Many smallholder farmers are difficult to reach and organize.- Farmers need training on proper use of pesticides and IPM systems.	<ul style="list-style-type: none">- Introduce premium varieties demanded by consumers.- Develop protocols for farmers to follow that will improve yield and consistency.- Organize farmer groups to more efficiently deliver training.- Develop extensive training on safe and effective use of pesticides, IPM and other production techniques.- Introduce record keeping and traceability systems.	<ul style="list-style-type: none">- Farmers can use less sprays and deliver better quality if they are properly trained.- Protocols must be tested and refined to local conditions.- Farmer groups linked directly to the retailer means better efficiency.



Case 3: Syngenta Programs to Minimize Chemical Interventions in Pome Orchards in South Korea.

Issues	Solution	Result
<ul style="list-style-type: none"> - Farmers use program spraying on regular intervals rather than threshold spraying in apple and pear. - Decision support for farmers is lacking on when to spray and with which product. - Application with high volumes and blast sprayers reduces efficacy and increases the need for more frequent sprays. 	<ul style="list-style-type: none"> - Develop low volume application with proper sprayer settings. - Introduce the use of pheromone traps to monitor insect populations. - Training for farmers on IPM principles and proper pesticide use - Introduce record keeping system. 	<ul style="list-style-type: none"> - Number of sprays significantly reduced by 34%. - More vibrant farming ecosystems, higher levels of beneficials. - Total AI per HA use reduced by 46% through use of better chemicals. - Total pesticide spend by farmer is reduced. - Syngenta's share of business with these farmers increased by 40%.



Case 4: Developing a Natural Enemy Business in Japan

Issues	Solution	Result
<ul style="list-style-type: none"> - Consumers in NE Asia are becoming more demanding about the quality and how their produce is grown. - Lack of beneficial insect products for farmers. - Use of pollinators supports need for biological control - Insecticide resistance continues to develop 	<ul style="list-style-type: none"> - Syngenta Bioline range of products <i>Encarsia formosa</i> (for whiteflies) <i>Phytoseiulus persimilis</i> (for spidermites) <i>Diglyphus isaea</i> (for Leafminer) <i>Aphidius colemani</i> (for aphids) - Sale and distribution via Syngenta (Japan) - Distributor technical support - Integration with chemical in IPM programs - Key drivers – pollinators, resistance 	<ul style="list-style-type: none"> - Biologicals market lacks impetus and drivers - Food chain support lacking, but continues to grow - Lack of certification requirement (eg not a “must” on protocols)



Case 5: Fruit fly Management: Mediterranean fruitfly populations in Spain decline on 7,000ha

Issues	Solution	Result
<ul style="list-style-type: none"> - Fruit flies threaten yield, fruit quality and trade - Flies attack ripening fruits - Sprays restricted by PHI and MRLs - Short residual effect of insecticides resulting in more sprays 	<ul style="list-style-type: none"> - Long lasting baits attract adult flies - Fly eggs fail to hatch - Use of insect growth regulator - Multi-crop use - Safer to use - Low labour input - Compatible with Sterile Insect Technique 	<ul style="list-style-type: none"> - Reduced fruit damage, - Better quality and yield - IPM features - selectivity - Long term population reduction - Insecticide residue-free production - Export opportunities - Consumer safety benefits



Male

Female

Ceratitis capitata Mediterranean Fruit Fly



Opportunity

- >14 serious fruit fly pests in Asia Pacific Region
- Australian Project underway
- APAC expansion planned

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Product Stewardship - Importance

Proper Stewardship:

- industry's effort to maximise benefit, minimise risk from agrochemical use
- identifies & addresses actual issues
- designed to understand and prevent problems which largely arise out of ignorance and misuse of products

Syngenta is **committed** to raising standards

Standards of use have steadily & significantly improved over the years

Intentional misuse remains a challenge



Product Stewardship - Focus

The ethical and responsible management of a product from innovation, to ultimate use and beyond

Helps to ensure products are used correctly and thus safely



Packaging and labelling, transport and storage, ensuring safe and effective use, safe disposal of containers

The focus is safe and effective use

Product Stewardship at Syngenta Krishishakti Centers



**“ Syngenta Krishishakti ” :
Center to enrich the power
of Agriculture as service
center for vegetable growers**



SKS – an engine for educating the women farmers



Miss Anjali Panmand: Explaining about Krishi Shakti



Mr. Prashant Lahigude: Focusing on Amistar

To motivate the lady farmers for using new agriculture technologies in their respective field for achieving the better production.



FTP With Godrej Aadhar at Wadgaon kandali :



Mr.Prashant Lahigude:Pest and diseases on all crops



Mr.Prashant Lahigude:Talking about SKS Services





Group Meeting on Polyhouse At SKS :



Mr.M.G.Kulkarni: Talking about SKS services



Miss. Anjali Panmand: Discussion on Polyhouse Pest and Diseases.

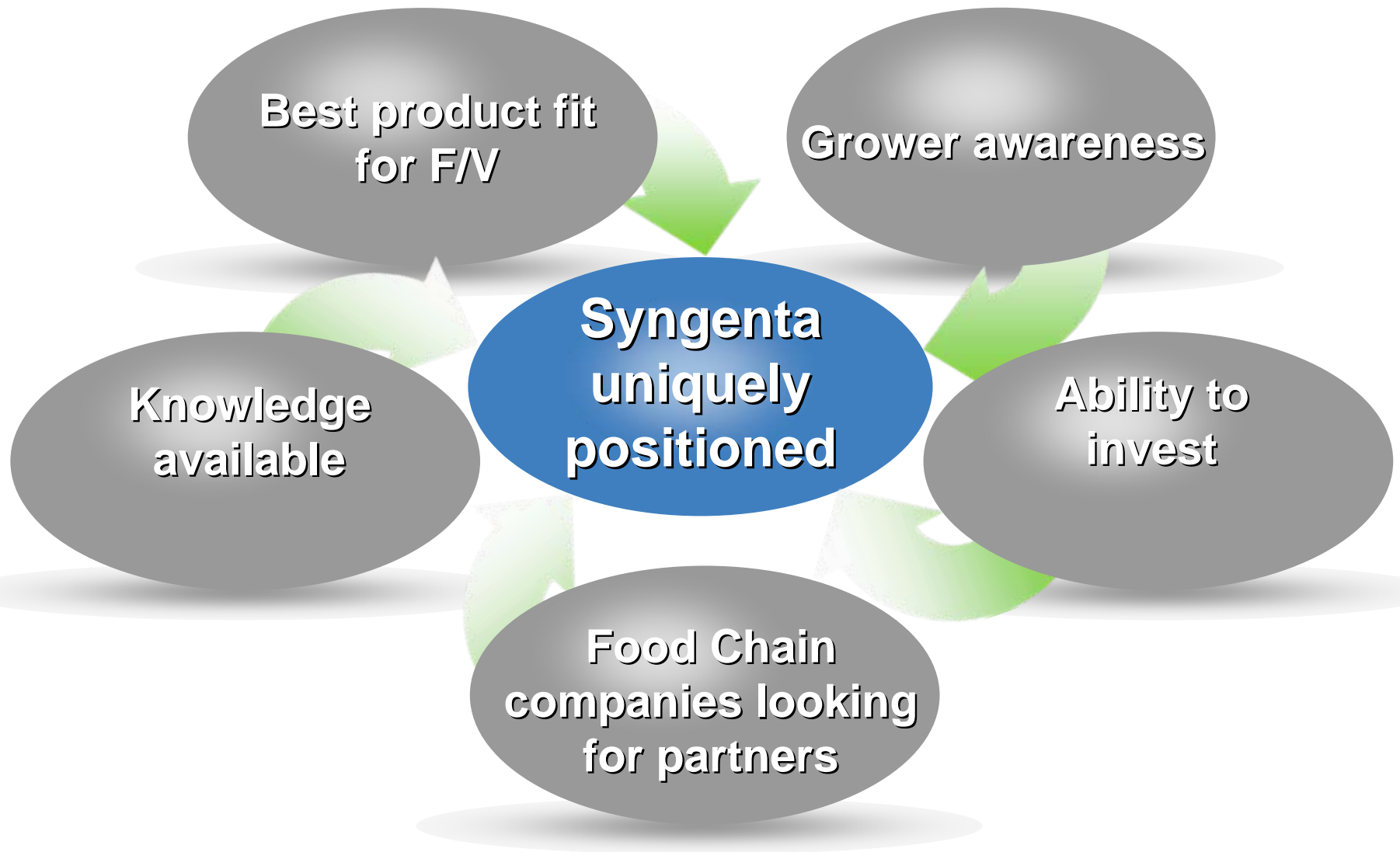
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Horticulture dynamics favour Syngenta



India emerging opportunities : Fresh FV retail boom

Fresh F&V Retail



Pilot projects with Value chain cos.

Pilots:

- Safal, Auction Market
- Godrej Adhar Farm to plate
- Field Fresh
- Shriram Hariyali
- ITC joint field services
- Syngenta crop programs
- Higher quality produce, premium prices
- Further opportunities food processing and export

Syngenta has the best opportunity to participate in rising trends of fruits and vegetables



- Best Product fit (Seeds and crop protection)
- Huge range of fungicides globally.
- Four new fungicides will be launched in next three years in India
- New projects in F&V including retail sales
- Contract farming opportunities
- Global export base

Questions?