



Science For A Better Life

Working together  
to ensure compliance  
with export  
requirements



food chain partnership



## How it all started

Red chillies are grown on a total of 792,000 hectares in India, mainly in the states of Andhra Pradesh, Karnataka, Madhya Pradesh and Maharashtra. The crop is planted in August and September, and harvested in March and April. India's red chili production totals 1,376,000 million tons (mt), with an average productivity of 2 mt/ha. Around 70 % of the crop is for domestic consumption and 30 % is exported, with dried chili exports amounting to around 22 % of all spices exported from India.

As a very important Indian export crop, chilli requires compliance with MRLs and completely aflatoxin-free produce. Red chili growers face a wide range of further specific demands when marketing their crop: a moisture content of less than 10%; adequate red coloring; sufficient pungency (40,000–70,000 SHU); and specific grading criteria. The project began in 2010 when Synthite was having problems procuring chillies complying with the export norms for the target countries due to chili samples failing in laboratory residue tests. Thus, Synthite approached Bayer for support through a Food Chain Partnership project.

## What we aimed to achieve

The overall aim was to develop a sustainable supply chain for high-quality chillies to comply with MRLs in Europe and the US. To this end, the project also aimed to disseminate best farming practices that would ensure higher returns on investments for the contract farmers. Another key goal was to set up training sessions for farmers in the safe use of crop protection products (CPPs), as well as on environmental issues and integrated pest management (IPM). Last but not least, this Food Chain Partnership wanted to involve the local farming communities in the project to ensure a positive social impact.

The following customer requirements had to be fulfilled:

- Effective implementation of agronomic practices, and in particular micronutrient and fertilizer management
- Optimized usage of CPPs in controlling diseases and pests
- Implementation of the food retailers' CPP spraying schedule
- Attendance at training courses on pest and disease identification and their management
- Laboratory tests to ascertain MRL compliance
- Implementation of good agricultural practices at the farms





## Who is involved

Around **1,300 contract farmers** grow red chilies for Synthite in Andhra Pradesh and Karnataka.

**Synthite Industries Ltd.**, which was founded in 1972, is the world's largest producer of spices and oleoresins\* with a turnover of US\$ 200 million and a global market share of more than 35%. Synthite's customers include the world's leading food companies, which buy from a portfolio comprising of more than 500 products made from the finest raw materials where complete traceability is ensured. Synthite's quest for quality and innovation has made it the preferred choice of its clientele in more than 85 countries. Synthite's demand for high-quality chili production was a logical consequence of its extremely high standard requirements.

**Bayer CropScience India** develops, designs and supports the implementation of crop-specific spray schedules based on a portfolio that covers a wide range of products, including seed growth, herbicides, insecticides, fungicides and biologicals. Bayer CropScience Vegetable Seeds supplied the required chili varieties based on the exporters' pungency and color requirements, and also provided support in training the field team in good agricultural practices.

\* A naturally occurring mixture of an oil and a resin extracted from various plants



## The integrated crop solution

Bayer CropScience developed a fully integrated crop solution to meet the demand for high-quality chili production. A major component of this solution was a complete, residue profile-tested crop protection schedule to ensure that the chilies produced are exported to their final destinations complying with the international norms.

The seedlings were treated with the insecticidal/fungicidal seed treatment products in order to protect the plants and ensure healthy growth for the first 30 days after transplantation. In addition, Confidor® and Spintor® were applied to control thrips, Oberon® to manage gemini virus through controlling mites as vectors, Fame®, Larvin® and Spintor® to control borers, Antracol® to deal with leaf spots, and Folicur® to tackle fruit rot and dieback.

In addition, around 40 training programs were regularly held in the relevant villages to access the 1,300 contract farmers, where they were trained and coached on IPM. In order to enhance sustainability, spraying techniques were improved, crop protection applications optimized, and the use of neem oil (Azadirachtin, a biological product), pheromone traps, and other non-chemical solutions encouraged. Tests were carried out to determine residues, aflatoxin levels, and illegal dyes.





## What we achieved

This Food Chain Partnership project proved to be a win-win situation for all those involved, as the following figures indicate.

### Contract farmers:

- 10 % increase in yields from 2 to 2.2mt/ha
- 20 % higher price than non-project farmers
- 5 % cost-savings (towards commission, weighing, bags, and transport due to direct delivery of raw material to Synthite's processing plant)
- Approx. 27 % increase in overall farmer income

### Synthite Industries Ltd.:

- High-quality, residue-compliant chilies from the desired source
- Compliance with the MRLs, meeting the customer's requirement
- Drying and grading as per requirements

### Bayer CropScience:

- Contribution to the sustainable production of chilies

The key factors that led to the success of this Food Chain Partnership project were regular field visits involving all the stakeholders, and the detailed planning, status discussions, and review meetings.

## Next steps

Synthite sees this Food Chain Partnership as a continuous process, which will be extended to cover more than 10,000ha by 2020. Synthite plans to expand this initiative to other crops as well, such as turmeric, cumin, and marigold.

“Through its backward integration initiative and sustainable program, Synthite is successful in providing safe and good quality chilies. For its products to overseas customers the association with Bayer CropScience as a technology partner is a win-win situation for all participants – farmers, Bayer CropScience, and Synthite.”

Anand Behl, Head of Farmtech, Synthite Industries Ltd.



left:  
Yogesh Mohite  
AGM of Food Chain Alliances  
Bayer CropScience Ltd., India

right:  
Anand Behl  
Head of Farmtech  
Synthite Industries Ltd.

food chain partnership



Consumers are becoming increasingly conscious of the need for healthy nutrition. Food Chain Partnerships help to supply consumers with high-quality fresh produce, which forms the basis of a healthy diet. But such partnerships can only succeed if they involve every player in the food chain – from the farmer and processor to the exporter or importer and retailer. Bayer CropScience has the global experience and cutting-edge expertise to create a successful partnership at every level.



**Bayer CropScience**

For more information contact:

**Bayer CropScience Ltd.**  
Central Avenue, Hiranandani Estate  
Thane (West), Maharashtra-400 607  
India

Phone: +91 2225 31 1057  
Mobile: +91 9769 77 3476  
Fax: +91 2225 45 5237  
Email: [yogesh.mohite@bayer.com](mailto:yogesh.mohite@bayer.com)

**Bayer CropScience AG**  
Food Chain Management  
Alfred-Nobel-Str. 50  
40789 Monheim  
Germany

Phone: +49 2173 38 4828  
Fax: +49 2173 38 3383  
Email: [foodchainpartnership@bayer.com](mailto:foodchainpartnership@bayer.com)  
Internet: [www.foodchainpartnership.com](http://www.foodchainpartnership.com)



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**Synthite Industries Ltd.**  
Synthite Valley  
Kolenchery, Kerala-682 311  
India

Phone: +91 4843 05 1227  
Mobile: +91 9387 58 5136  
Fax: +91 4843 05 1351  
Email: [anand.b@synthite.com](mailto:anand.b@synthite.com)  
Website: [www.synthite.com](http://www.synthite.com)

