Syngenta Case Study

Evaluating The Sustainability Consortium Responsible Pest Management Framework February 2021

syngenta

Syngenta is a leading science-based agtech company. We help millions of farmers around the world to grow safe and nutritious food, while taking care of the planet.

Syngenta is a global company with headquarters in Switzerland. 28,000 employees in 90 countries are working to transform how crops are grown and protected.

We accelerate our innovation and invest to advance a more sustainable agriculture which is good for nature, farmers and society.

Our work helps farmers to face the challenges of todays changing world. Farmers must adapt to the effects of climate change, improve the soil and enhance biodiversity, and respond to society's views on food and agricultural technology. And we are transparent about what we're doing and the impact it is making.

Source: Syngenta.com

Syngenta joined The Sustainability Consortium as a Tier 1 member over a decade ago. Syngenta has actively engaged in the Food, Beverage and Ag sector collaborating in the development of TSC work products with staff and other members.

Summary of Case Study

- The Responsible Pest Management (RPM) framework (draft) was used to develop row crop grower self-assessment questions
- The self-assessment included all outcomes, drivers for responsible pest management mostly at the basic leadership level
- The self-assessment was integrated within grower surveys conducted in partnership with
  - Trust In Food, a Farm Journal initiative
  - other surveys with a major Consumer Packaged Goods company
- Learnings documented from the experience informed further development of the RPM Framework

- Responses from 371 growers
- Easily integrated within ongoing sustainability initiatives with growers
- Insights used to develop principles to improve the next iteration of the framework

Approach to the Case Study

Objectives:

- Determine the feasibility of implementing the RPM Framework with growers
- Develop grower friendly questions in plain language
- Implement a grower self-assessment
- Analyze grower responses to understand engagement at each Outcome and Driver Leadership Level
- Generate insights for improvements to development of RPM Framework
- Generate insights on the use of Leadership Levels

Methods:

- A subset of 20 practices were selected from the Framework 2nd draft
  - Four outcomes
  - Leadership levels mostly basic with some medium and high levels
- Grower friendly questions were coded into an easy-to-use grower self-assessment
- Integrated within ongoing sustainability initiatives in the USA for 2019 crop production
- Three crop systems were represented:
  - Corn and soybean row crop rotation
  - Irrigated wheat
  - Sugar beet

Additional questions of interest to Syngenta were assessed

- How easily can a subset of the RPM Framework be assessed with a group of growers already participating in sustainable sourcing initiatives?
- Can the RPM Framework be integrated with what we are already doing to avoid adding cost and extra burden on growers?
- Can a baseline of grower RPM activities be established by primarily focusing on Basic level leadership practices across the outcomes and drivers identified in the RPM Framework?
  - In the future, additional leadership levels could be added to better understand potential opportunities for improvement and value-add for the grower.
- Is it useful to include additional questions on specific practices of relevance to responsible pest management?

Grower self-assessment question developed for corn and soybean

Corn & Soybean: Which of the following is practiced on or exists for your farm operation as concerns pests, to any degree? Select all that apply.	**Driver**	**Level**	**Outcome**
Farm records kept on pest management sprays	Recordkeeping	Basic	Optimal Production
Pest management program supports optimal yields and maximizes profitability	Yield, Quality, Supply chain	Basic	
Crop scouting or monitoring for pest thresholds	In-season Information Use	Basic	
Use a Certified Crop Advisor	In-season Information Use	Med	
Rotate chemistries/modes of action	Diversification	Basic	Resilience & Pest Suppression
Biological products or approaches used	Diversification	Med	
Seed selected provides genetic protection to pests	Diversification	Med	
In season data gathering influences decisions	Information Intensity	Basic	
Precautions taken to not introduce new pests	Pest Suppression	Basic	
Conservation Crop Rotation	Pest Suppression	Med	
Program minimizes impact on adjacent non-crop areas	Sensitive Areas	Basic	Environmental Protection
Program protects any nearby sensitive environmental areas	Sensitive Areas	Basic	
Manage application timing to minimize drift and runoff	Sensitive Areas	Basic	
Practices used include reduced tillage or cover crops or pollinator habitat	Sensitive Areas	High	
Targeted delivery options utilized (e.g., seed treatments, partial field treatment	Degree of Targeting	Basic	
Sprayer equipment design and calibration utilized to minimize drift	Off-site movement control	Med	
Mycotoxin and seed pathogen prevention steps taken	Pest related Health	Basic	Human & Animal Health

Grower self-assessment question developed for sugar beet and wheat

Sugar Beet & Wheat: What responsible pest management practices did you use to control weeds, disease and insects? Select all that apply.	**Driver**	**Level**	**Outcome**
Farm records kept on pest management sprays	Recordkeeping	Basic	Optimal Production
Pest management regime supports optimal yields and maximizes profitability	Yield, Quality, Supply chain	Basic	
Crop scouting or monitoring for pest thresholds	In-season Information Use	Basic	
Outside expert consultation to optimize pest control options	In-season Information Use	Med	
Rotate chemistries/modes of action	Diversification	Basic	Resilience & Pest Suppression
Additional strategies included such as biological, cultural and genetic	Diversification	Med	
Varieties selected to maximize crop pest resistance	Diversification	Med	
In season data gathering influences decisions	Information Intensity	Basic	
Precautions taken to not introduce new pests (e.g., clean, certified, treated seed & clean equip.)	Pest Suppression	Basic	
Impact on non-crop areas considered in pest control decisions	Sensitive Areas	Basic	Environmental Protection
Knowledge of location of sensitive environmental areas used in decision making	Sensitive Areas	Basic	
Manage application timing to minimize drift and runoff	Sensitive Areas	Basic	
Practices used reduce the need for tillage	Sensitive Areas	High	
Targeted delivery options utilized (e.g., seed treatments, partial field treatment	Degree of Targeting	Basic	
Spray equipment regularly calibrated	Off-site movement control	Basic	
Sprayer equipment design and calibration utilized to minimize drift	Off-site movement control	Med	
Human or animal health related issues considered in product choice	Risk or Hazard Guidance	Basic	Human & Animal Health
Workers well trained and equipped for applicator PPE	Worker or Neighbor Protections	Basic	
Neighbors informed of pest management activities as appropriate	Worker or Neighbor Protections	Basic	
Mycotoxin and seed pathogen prevention steps taken	Pest related Health	Basic	

A high level of participation was accomplished through integrating the RPM Framework with ongoing grower sustainability initiatives

Type of Production	Production Years	Number of Responses
Sugar beet	2019	53
Wheat	2019	13
Corn & soybean rotation	2019	305
TOTAL		**371**

Learnings from the Case Study experience helped develop principles to inform draft three of the RPM Framework

Principles:

1. Only one question for each leadership level that is clearly linked to the driver is preferred
2. Exclude regulatory and legal compliance practices
3. Involve specific actions and avoid subjective qualifications e.g., rigorous, regularly, highly
4. Remove explanatory and educational information in questions
5. Clarify spatial scale for questions where relevant e.g., farm, field, crop etc.
6. Quantify prevalence of implementation of a practice where relevant e.g., % of crop acres
7. If a question is associated with several drivers only list it once
8. Cover all relevant aspects in the single question
9. Participation in government conservation programs or voluntary initiatives should be clear e.g., completing an assessment does not equal actual implementation of practices

Case Study findings on the RPM Framework

- RPM Framework can be easily and successfully integrated within ongoing sustainability initiatives with growers
- Grower friendly questions can be developed
- Using all Outcomes and Drivers provided a differentiated response across crops and growers and provided insights into the details of approaches to pest management
- Using Basic and Medium Leadership Levels provided a differentiated response across growers
- Higher leadership levels may be more challenging to include because some require more than one simple question
- Results were included in reports providing greater transparency on pest management
- Assessing specific practices of interest to Syngenta provided additional insights of relevance to our innovation and commitments to sustainability

What did we learn about growers? Results show Responsible Pest Management strategies differ across crops and regions.

- Practices implemented across all outcomes and drivers were diverse. All practices in the assessment were relevant to some growers and others were very relevant to most growers (range of 15-99%)
- Some medium leadership level practices had a higher prevalence than basic level.
- The importance of outcomes across crops varied possibly reflecting differing
  - pest pressure and resistance challenges
  - targeted yields, quality and economics for marketability of the crop driving the intensity of pest management
  - locations and their proximity to sensitive areas both human inhabitation and environmental

Practices most prevalent across crops:

- Optimal Crop Production: Crop scouting and record keeping
- Resilience & Pest Suppression: The rotation of chemistries followed by selection of varieties and in season data gathering
- Environmental Protection: Calibration of sprayer equipment and timing of spray applications to avoid off-target drift

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