
WP 2.1.6
Integrated management of pests and pathogens of key Scottish crops
Scottish Government
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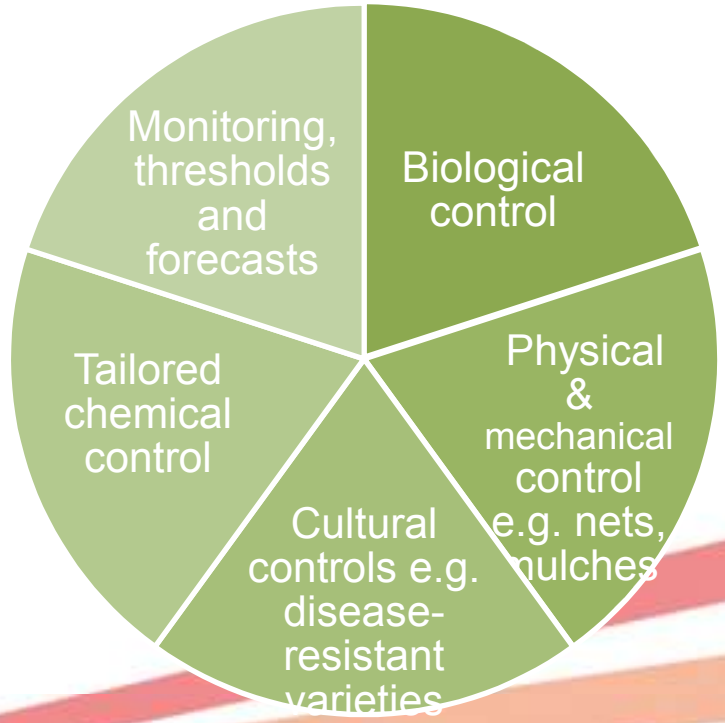
Context for IPM

- High endemic disease burden
- Limitations on chemistry
- Sustainable Use Directive, Water Framework Directive, PPP regulations
- Integrated Pest Management

Fighting pests the clever way….

Integrated Pest Management (IPM) takes a whole farm approach to managing the land which:-

- Maximizes the efficiency of crop production
- Minimizes negative effects on the environment



Research in WP2.1.6

- Assessing risk
- Better information
- Better decision making
- Efficacy and timings of interventions
- More interventions
- Integrated Management

What are the key components of integrated crop health?

- Crop rotations (2.1.8, 2.3.9)
- Resistant varieties (2.1.1 and 2.1.2)
- Cultural controls (2.1.6)
- Healthy seed (2.1.5)
- Understanding how pathogens reduce yield (2.1.3, 2.1.4)
- Protection and enhancement of important beneficial organisms (2.3.9)
- Monitoring/forecasting (2.3.3, 2.1.4)
- Thresholds and diagnostics (2.1.5)
- Use of biological, physical and other non-chemical methods (2.1.6)
- Targeted application of pesticides (optimised timings, best products 2.1.6)
- Stewardship and anti-resistance strategies (2.1.6)

Highlights for today

- Bacteriophages for blackleg control
- Controlling Ramularia
- Alternatives to synthetic fungicides
- IPM planning tool
- Co-construction

On-line planning IPM tool for Scotland

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Integrated Pest Management Plan for Scottish Growers

Overview

This plan has been adapted from the National Farmers Union Integrated Pest Management (IPM) plan, promoted by the Voluntary Initiative, to help Scottish farmers meet their legal obligation to take reasonable precautions to protect human health and the environment when using pesticides. Completing an IPM plan will help the landowner/contractor to make the best possible and most sustainable use of all available methods for controlling pests, weeds and diseases.

What is Integrated Pest Management (IPM)?

Integrated pest management is a site specific, whole farm approach to maximising the efficiency of production whilst minimising negative effects on the environment. This should involve minimising pest, weed and disease risks and includes the use of crop rotations, appropriate cultivation techniques, the use of resistant varieties, tailored and efficient use of artificial inputs such as fertilisers, pesticides and fossil fuels and the enhancement of wildlife habitats. Pest monitoring and the use of thresholds for treatment are a component in reducing reliance on pesticides.

Contact

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Key Dates

Status: Open

Runs from 11 May 2016 to 14 Jun 2022

Other Information

Audience:

People of Scotland

Interests:

Farming

http://bit.ly.pestmanagementplan

Scottish IPM plan asks for ....

- Background
- Pre-planning
- Identification of major risks
- Sustainable use of pesticides
- Use of monitoring and surveillance
- Further plans and additional reading

Takes around 15 minutes, you can view all the questions when you enter your email. Your data is protected and your email is only required so that your plan can be emailed to you.

What are the benefits of completing an IPM plan?

- Gives growers an idea of what is currently done on-farm that is considered to be IPM
- Helps them reduce reliance on pesticides
- Maximises the effectiveness of all crop protection methods
- Assists with long-term plans to reduce the pest burden on farm
- Lets them tailor annual inputs to the in-season risks
- Reduce waste and improve business practice and productivity
- Improves pesticide stewardship

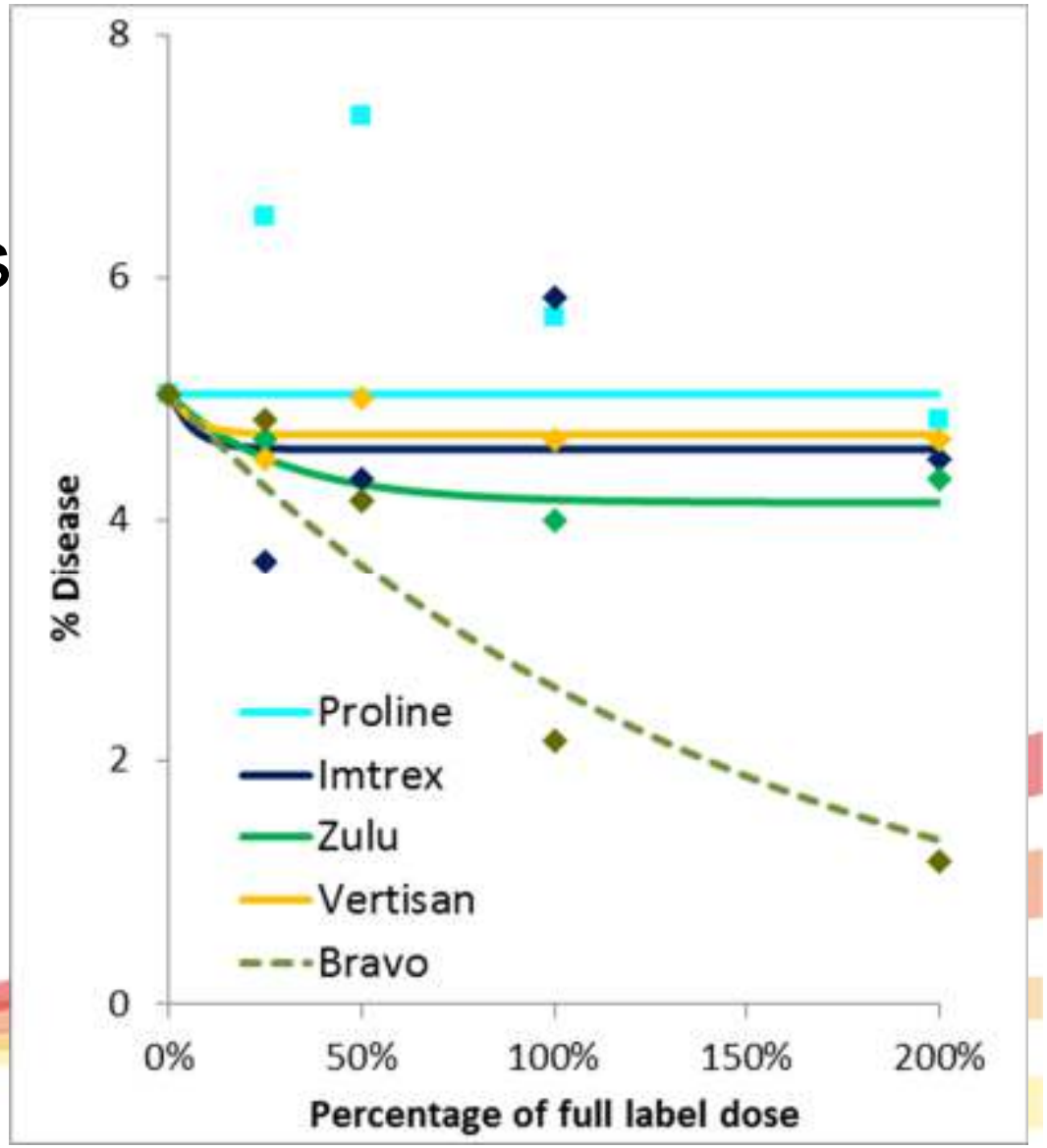
- Shows promotion of IPM measures
- Informs pesticide survey data
- Gives metrics to track progress

Ramularia

- Ramularia damaging to yield and quality
- All varieties currently susceptible
- Control reliant on fungicides
- Current and historical efficacy and resistance status of fungicides
- 5 ‘R’s for diagnosis

Ramularia

- Varietal resistance
- Agronomic practices
- Fungicides



Ramularia

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Ramularia leaf spot in barley

Figure 1. Ramularia leaf spot symptoms – the '5Rs': (1) Ringed with yellow margin of chlorosis, (2) Rectangular shape, (3) Restricted by the

Ramularia

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Identification and field scoring guide for ramularia leaf spot

Elicitors

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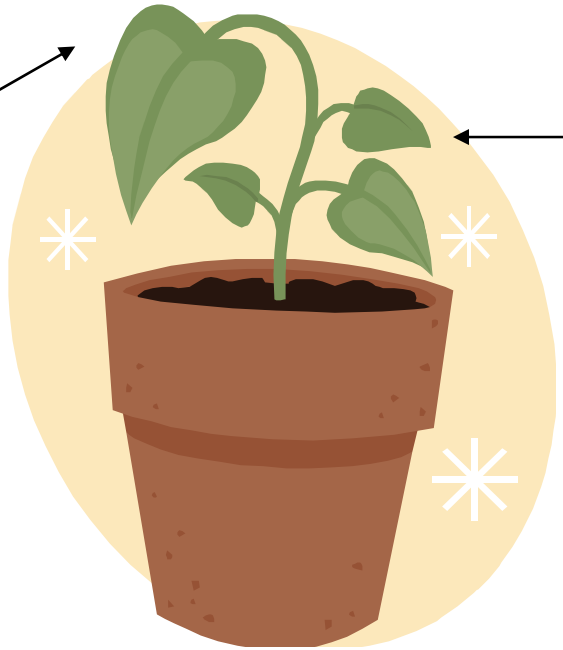
defences activated

or

defences activated following challenge

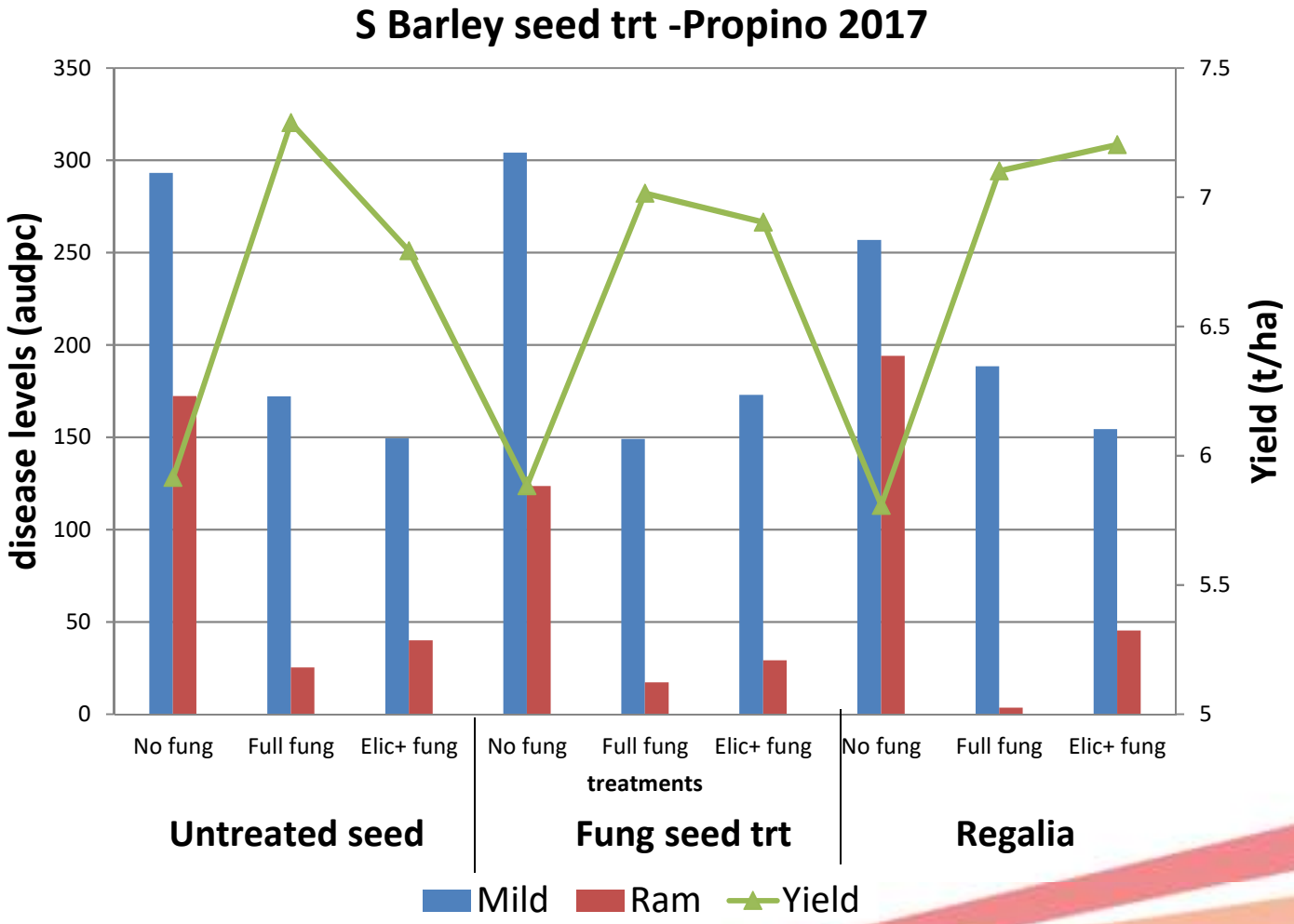
priming



application of elicitor

Priming only uses energy for defence when a pathogen attacks

Elicitors


S Barley seed trt -Propino 2017
disease levels (audpc)
Yield (t/ha)
350
300
250
200
150
100
50
0
7.5
7
6.5
6
5.5
5
No fung
Full fung
Elic+ fung
No fung
Full fung
Elic+ fung
No fung
Full fung
Elic+ fung
treatments
Untreated seed
Fung seed trt
Regalia
Mild
Ram
Yield

IPM perception and uptake in the arable sector

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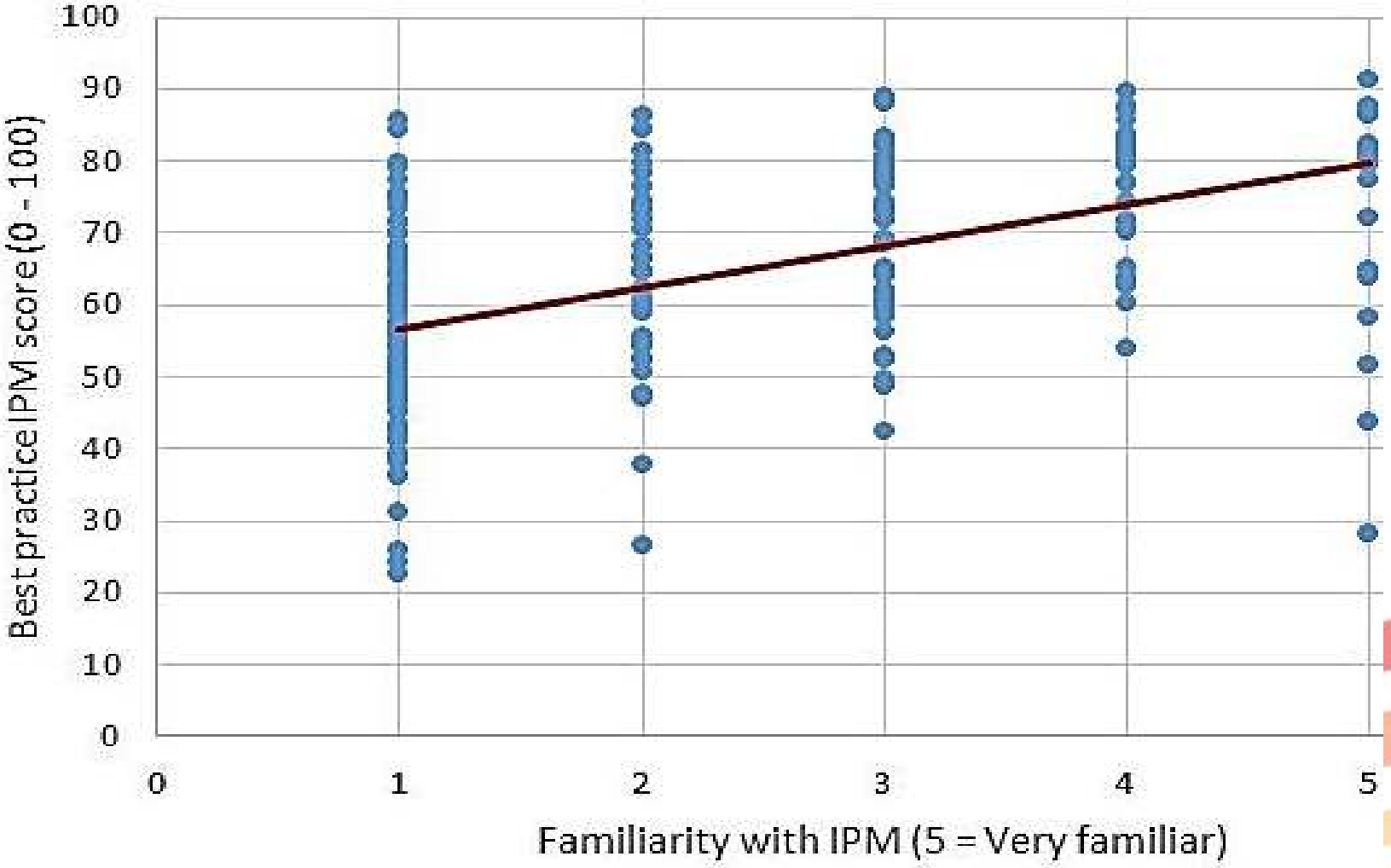
- What do we know and what do we need to know?
  - Very little information on adoption and even less on perception
- Why do we need to know more?
  - Baselines
  - Barriers to uptake
  - Inform future research and KE
- How do we go about gathering such information?
  - Survey (questionnaire)

Familiarity = Uptake



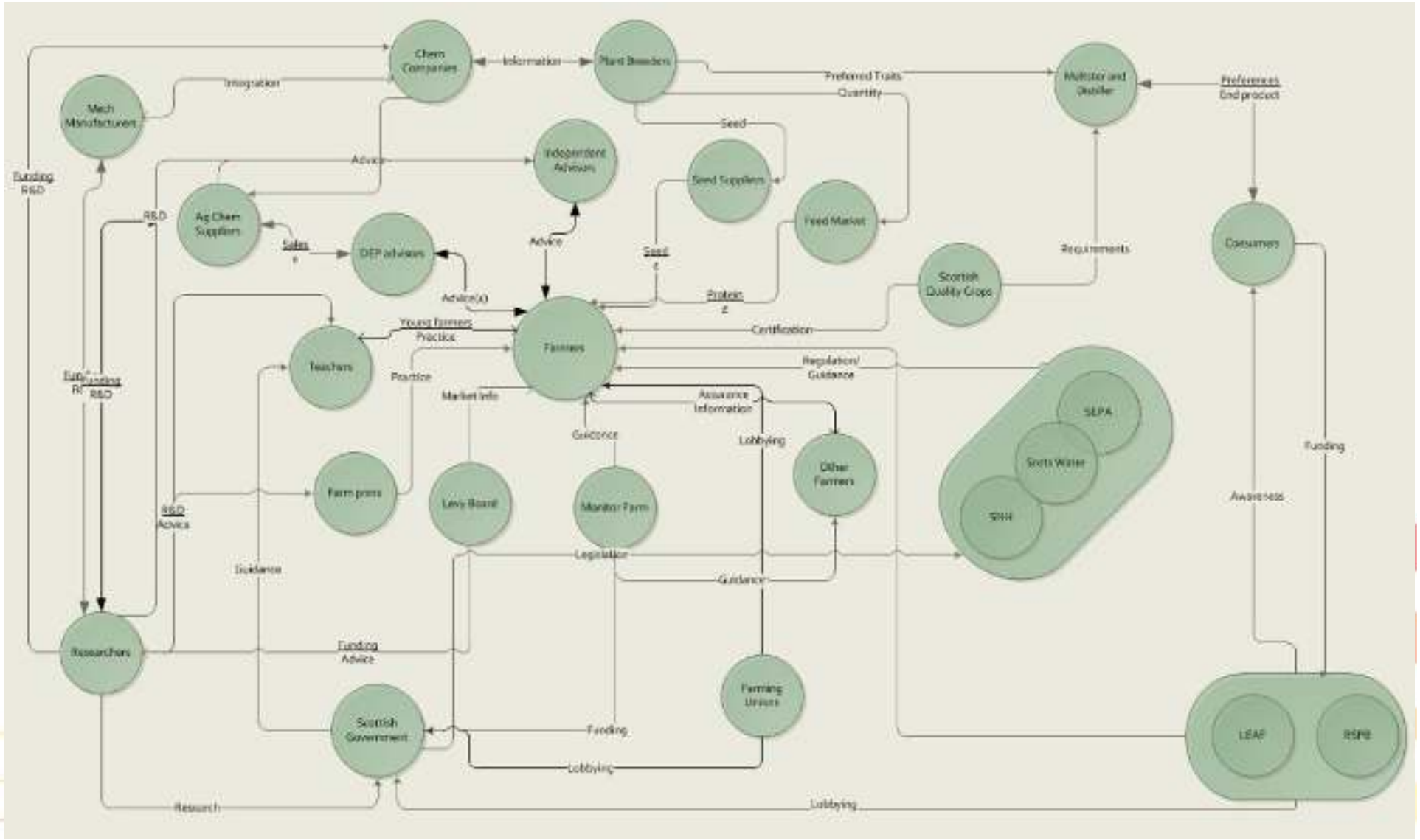
Information source

Information source	Relationship to familiarity
Farmer discussion groups	++
Open days / crop walks	++
Independent agronomist	+
Chemical company rep	ns
Contractors	ns
Farming press	ns
Other farmers	-
Past experience	-
Merchant agronomist	- -

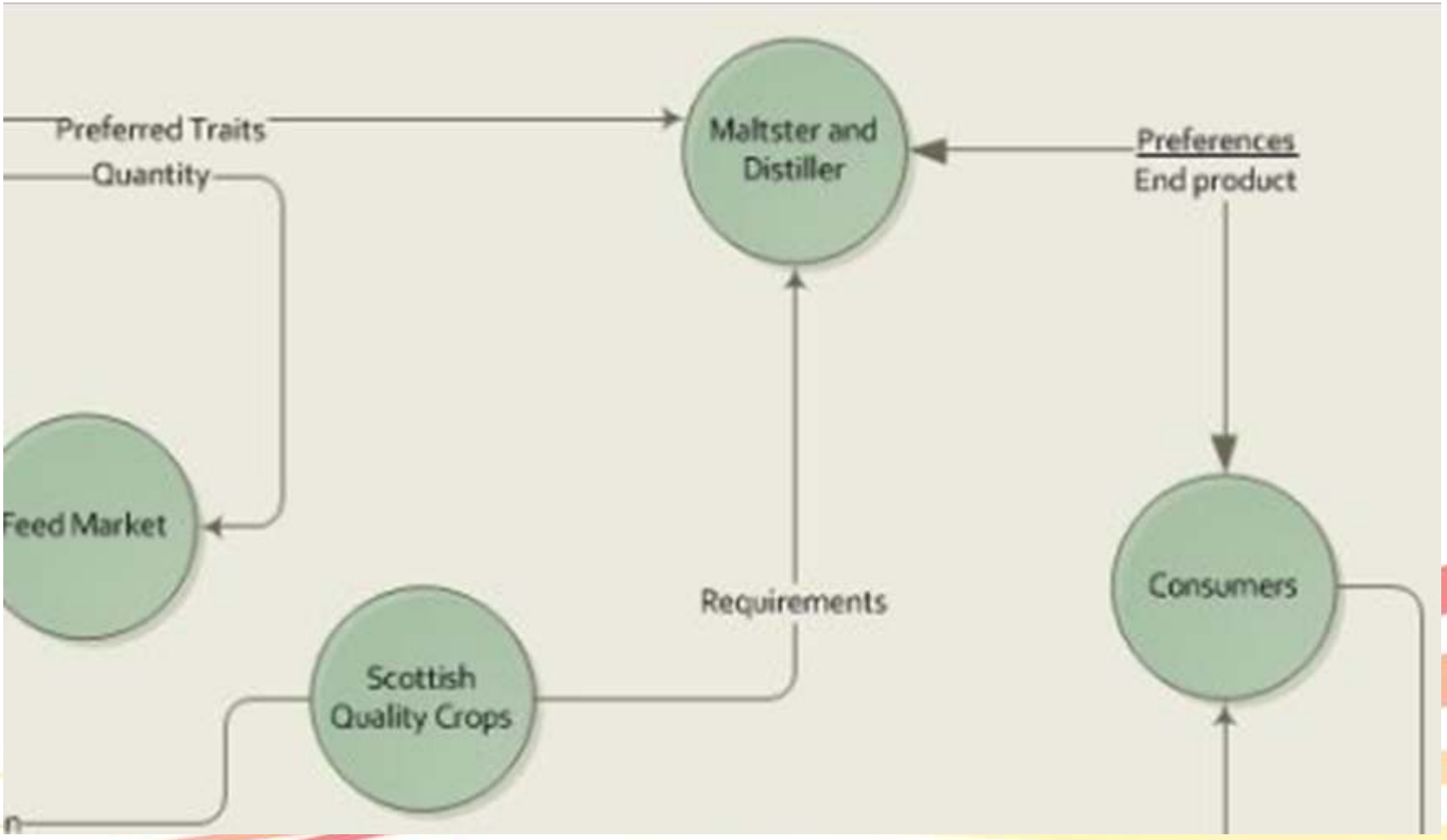
IPM value chain: Barley

- Co-innovation Stakeholder workshop:
  - Farmers
  - Agronomists
  - Maltsters
  - Researchers
  - Policy makers
- Understand barriers to adoption of IPM.
- Identify the supply chain and influences within which the eventual end-users operate.
- Mapping exercise to identify main actors and flows between agents.

IPM value chain: Barley



IPM value chain: Barley

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