IPM adoption in my hub

Facilitation approach and progress made in IPM adoption

My group

Andrew Christie
The James Hutton Institute
Dundee DD2 5DA
andrew.christie@hutton.ac.uk

PRESENTATION OF THE HUB COACH ORGANISATION

The James Hutton Institute, has two campuses in North East Scotland, Dundee and Aberdeen, with mission to conduct excellent science and engage in new ways of working across disciplines, with business, policy and society, that guide contemporary thought and challenge conventional wisdom, ensure trust and deliver the best outcomes for all.

THE HUB

8 active members + 4 associate members

Arable/Mixed farms
Barley, Wheat, WOSR, Potatoes are main crops grown

OBJECTIVES AND MOTIVATIONS OF THE FARMERS

Reducing inputs whilst maintaining outputs

Viable business model for production providing multiple benefits

Alternative and novel technologies to improve efficiency or effectiveness

DRIVERS

Quality Assurance schemes pushing for greater justification of applications

Financial insecurity with fluctuating input and commodity prices

Aim to stabilise peaks and troughs by controlling costs

Reduced effective options for chemical control, look to new approaches/tech

BARRIERS

Maritime climate - short weather windows, long growing season

Limited market options and varietal choice – malting barley dominates

Risk associated with change - opportunity cost and capital investment

Any methods which reduce efficiency or require more labour are problematic

IPM challenges and results

IPM Challenges

Climate perfect for cereal and potato diseases

Limited local trial data on alternative control options

Short window for cover crop establishment

Build up of grass weed problems in direct drill systems

The hub's results

"Blightspy DSS" for late blight in potato crops facilitates a targeted approach, reducing 1-3 sprays per season

On farm validation through in-field comparisons has provided information relevant to the area for use of biostimulants and companion planting

Cover crop establishment and biomass accumulation remains at mercy of the weather, but some promise has been shown from sowing within growing crop

Rotational ploughing has returned to direct drill system to reduce weed burdens (and alleviate compaction)

Hub farmers have found success in targeting areas to maximise effect with cover cropping to benefit their, promote beneficials reduce pest pressure

Multiple benefits found from companion crop establishment of WOSR has reduced the risk of growing the crop and led to uptake on 3 hub farms

Key conclusions

Understanding context of each members' farming system is key to understanding where gains in efficiency can be made with an integrated management approach. The intricacies and nuances relative to each farm must be addressed in order to achieve the best outcomes.

It is important to build trust between the hub coach and the farmer in order for uptake of new ideas. One to one meetings, surveys and in-field comparisons can help to bring these new ideas to life. An idea sparked from conversation can be tested as an in-field comparison providing on-farm validation, which informs the decision-making process

Facilitation approaches

What is the issue the hub work on more precisely?

Gaining multiple benefits from changes to land management; maintaining output whilst adding strength through resilience from ecosystem services and use of technology

How did you proceed? What did you do?

By providing examples of success stories and challenges encountered in side by side comparisons of systems

Providing robust data from in field comparison is essential to provide reliable evidence, particularly with economic analysis

Reducing Inputs whilst maintaining Outputs

What conclusions can you draw?

We have identified areas where gains can be made with benefit to farm profitability, biodiversity and lower reliance on PPP's, e.g. companion crops, biostimulants

But other areas which seemed promising did not translate into a benefit, therefore justifying some traditional practices as best fit e.g. rotational ploughing

My tips for making it work

Field walks are great tools for farmers not just to 'see' a crop but to 'feel' a crop for comparison

Handouts and videos allow us to reach a wider audience beyond a single demo event

Trust between farmer and advisor is of paramount importance

Individual facilitation

On farm trials to test a system change relevant to hub members' farming system

Access to resources for monitoring pollinators and pests in the crop on request

One to one meetings and individual approach to providing advice

Collective facilitation

Dissemination of on-farm trials to wider group and discussion to communicate motivations for change at annual hub meeting

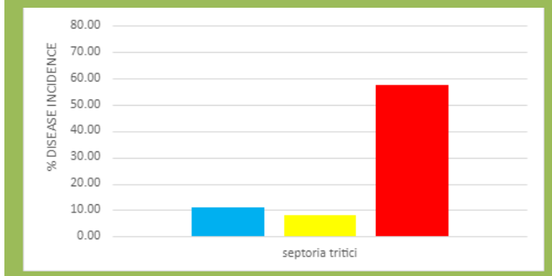
Sharing economic information at a crop gross margin level to allow benchmarking

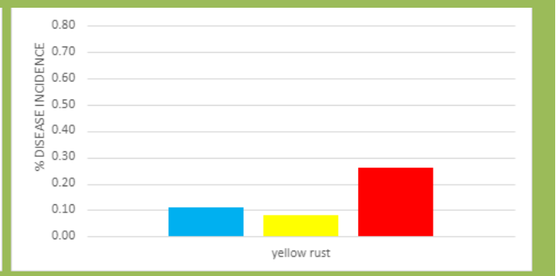
Field walks, demonstrations of new technology and farm visits to gain insight into other farmers/groups approaches

IPM adoption & pesticide use

Alternative Plant Protection Programme for Winter Wheat

Data from hub farm in Angus, for Winter Wheat c.v. Skyscraper, 2023 harvest year





FULL FUNGICIDE	4 spray fungicide programme	TFI = 5.34
BIOFORTIFICATION	Elicitors, nutrition + biostimulants	TFI = 1.59
UNTREATED		

A farm standard 4-spray fungicide regime was compared to an alternative Biofortification' programme utilising elicitors for induced resistance, foliar nutrition for plant fitness and biostimulants to alleviate stress.

Key outcome was the similar levels of control afforded by alternative approach with lower TFI and reduced growing costs. Despite an associated yield drop from change, discussion within the group led to a conclusion that savings can be made early season before flag leaf.

Hub farmers are now adopting a hybrid approach informed by this knowledge, reducing their PPP use whilst retaining system resilience.

> The access to independent advice and discussion with my other hub members has helped our approach to business decision making.

> We feel under pressure to reduce our use of plant protection products, and through knowledge gained through the hub and wider network, our learnings have identified areas where we can make savings and other areas which won't work or may lead to a worse outcome. This is invaluable information for me.

Andrew Christie

James Hutton Institute – UK (Scotland) hub coach

> By facilitating demonstration events, field walks and trialling new techniques for on-farm validation, we have been able to provide examples of IPM in action.

Context and relevance to the specific farm system are often stumbling blocks in adoption of new ideas. With this project we have overcome these issues by bringing science to the farmer.

In future we wish to bridge the gap between research and practice by building on these relationships, maximising our impact to benefit the farmers themselves.

A European network of demonstration farms promoting low pesticide use and economically efficient management strategies

THIS PROJECT HAS RECEIVED FUNDING FROM THE EUROPEAN UNION' HORIZON 2020 RESEARCH AND INNOVATION PROGRAMME UNDER GRANT AGREEMENT N. 101000339