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AICC Conference IPM takes centre stage for agronomists

the Independent Agronomist

AICC

ADVICE YOU CAN TRUST FROM THE ASSOCIATION OF INDEPENDENT CROP CONSULTANTS | **SUMMER 2019**

Where next for oilseed rape?

Combating flea beetle in Britain's favourite break crop

www.aicc.org.uk

HOW IS AICC GOVERNED?

The AICC is governed by a Council of Management who are Directors of AICC managed by the CEO. There is a separate trials team with representation from each trials region.

TRAINING AND SUPPORT

Training is staged in seven regions by coordinators which provides members with comprehensive technical and industry updates. Training is also staged nationally as required with industry partners such as BBRO, Rothamsted Research, NIAB for example, as well as the Academy modules.

AICC members gain discounts on industry schemes and professional indemnity insurance. They also receive help and support with business and industry issues.

SURVEY POLICY

In 2017, AICC published a survey policy in response to members complaints regarding constant and sometimes intrusive requests which underestimate the value of the information provided.

AICC recognise that members are at liberty to take their own view on this but the Directors of AICC have encouraged members to only undertake surveys that have been sanctioned by AICC.

Furthermore, ICD (Independent Crop Data) will be pursuing contracts as the only body with independent agronomists across the country, with carefully chosen partners.

AICC TRIALS

AICC has had a long history of running in-house trials for the benefit of its members. The portfolio of projects undertaken and regional extent of these member trials has been significantly increased in the last nine years.

The AICC Trials team comprise a committee of highly proficient and technically driven, established agronomists from the South, West, East, Central and Northern regions of England along with Scotland.

AICC Trials run a national series of independent field trials that are principally involved in testing and comparing the performance of current and near market agrochemicals. Our trials also focus on specific agronomic issues such as nitrogen response trials, the role of micronutrients, and the use of adjuvants.

In addition, we also run a number of regional variety trials looking to compare the performance of new and established varieties – currently the main focus of these trials are early drilled winter wheat varieties, along with trialling the tolerance of winter oilseed rape varieties to Verticillium wilt.

AICC Trials data is turned around quickly to maximise the benefit to members, and external manufacturers have praised the efficiency and professional way we handle trials. AICC Members are able to attend a detailed results session at our Annual Conference each year as well as inspecting trials sites during the season.

This resource is one of the many pools of information that AICC members use (see infographic on page 4) but there is no doubt that access to these extensive, independent trials results and innovative technology is key to being at the forefront of delivering technical excellence and providing AICC members with the tools to deliver the most cost effective advice to growers.

THE FUTURE

AICC takes the view that it is healthy to have a near 50:50 split of the advisory market and expects to see the independent share increase. The current climate is enhancing this independent thought process. Independent in thought, why wouldn't a grower wish to have an independent adviser?

WELCOME

Independent advice to farmers and agronomists is more important than ever, says AICC Chief Executive **Sarah Cowlrick**

Securing a better future for arable growers

Growers face many opportunities – and challenges too – as the government shapes its new domestic agricultural policy for the UK.

The Agriculture Bill is likely to pave the way for the phasing out of direct subsidies – with a move towards payments for delivering public goods through environmental land management contracts.

This will require even more of a focus on cost-effective, sustainable intensification for food production – a goal that independent crop consultants are helping more growers achieve every day.

Established in 1981 and now with 264 members, the Association of Independent Crop Consultants (AICC) has a UK market share approaching 50% when it comes to advising arable farmers.

Focusing solely on improving arable margins using comprehensive agronomic information only available to AICC members, independent crop consultants are well-placed to support growers into the future.

The AICC provides a unique forum for the exchange of exclusive technical information. Our members adhere to a strict code of conduct which underpins the whole ethos of independent advice.

Independent crop consultants are employed by their farmer clients to give all-round agronomic and strategic advice and are paid by a separate consultancy fee (usually on an area basis).

Their advice is comprehensively agronomic. It includes advice on core crop protection, crop nutrition, environmental issues, cultivations and strategic planning.

AICC agronomists understand that growers are free to choose whether to buy advice or not.

That's why exclusively independent, bespoke advice backed by independent research represents exceedingly good value, especially when underpinned by truly up-to-date agronomic practice.

It is important to point out that AICC advice is not linked to agrochemical sales. Growers are free to purchase products from wherever they choose, often through buying groups who offer highly competitive prices.

This openly transparent ethos enables growers to differentiate between what they are paying for their advice – and what they are paying for their crop inputs.

We watch with interest moves in France to ban agronomists from bundling crop walking fees with the sale of inputs – a ruling which would give growers greater clarity about what they are paying for.

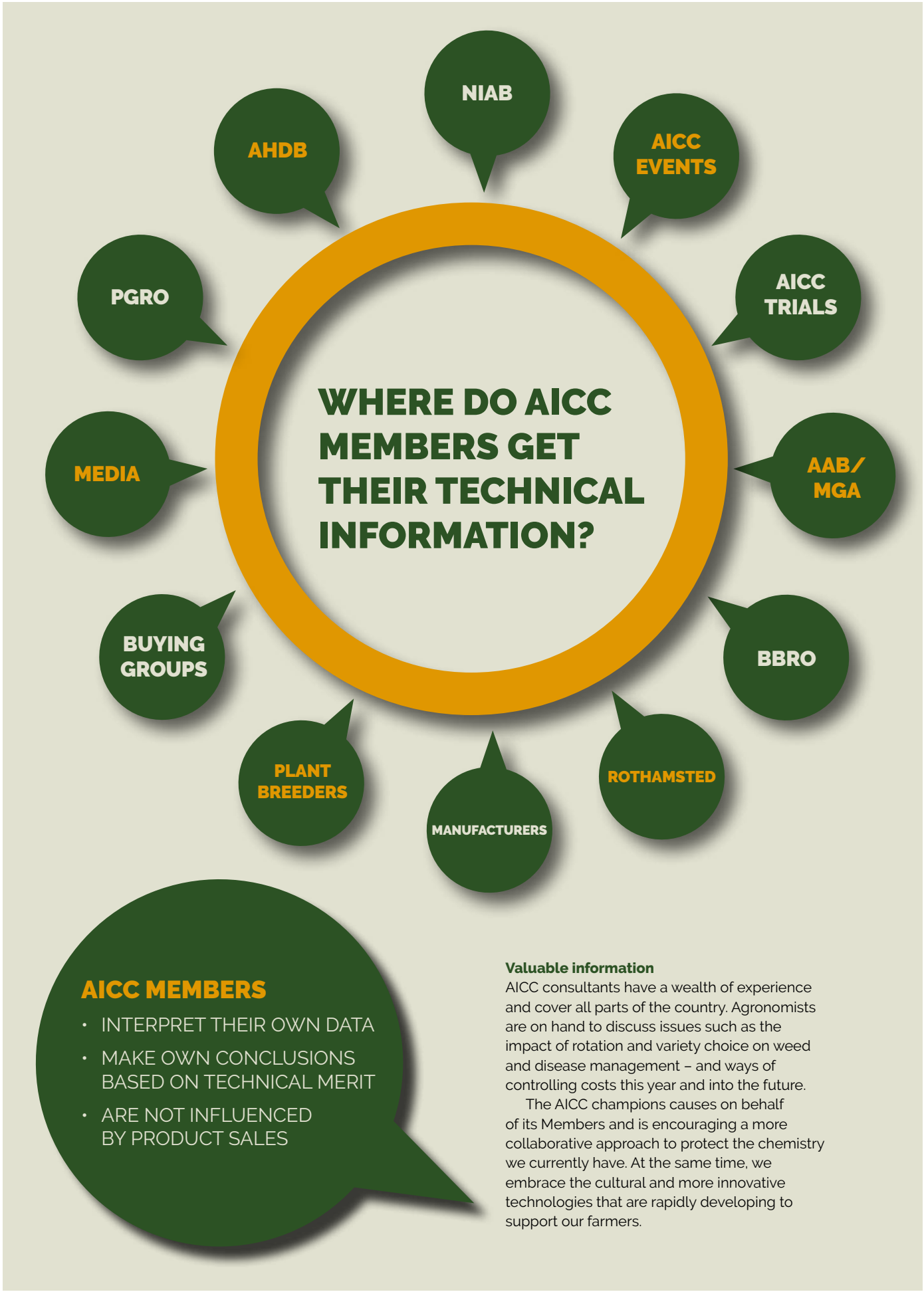
Separating expert technical advice and associated product sales is a model which AICC members have always followed – and which underpins the very ethos of our business model.

We believe that employing an AICC crop consultant enables farmers to receive the best possible independent agronomic advice with the ability to purchase their crop inputs at the most competitive prices.

Everyone benefits as a result.

INSIDE

ASSOCIATION OF INDEPENDENT CROP CONSULTANTS (AICC) **E:** info@aicc.org.uk **W:** www.aicc.org.uk
The Independent Agronomist, developed by Sarah Cowlrick and produced by Ruralcity Media on behalf of the AICC.



Valuable information

AICC consultants have a wealth of experience and cover all parts of the country. Agronomists are on hand to discuss issues such as the impact of rotation and variety choice on weed and disease management – and ways of controlling costs this year and into the future.

The AICC champions causes on behalf of its Members and is encouraging a more collaborative approach to protect the chemistry we currently have. At the same time, we embrace the cultural and more innovative technologies that are rapidly developing to support our farmers.

Independent advice delivers results – and best value

Independent agronomists are the best possible source of unbiased advice, explains AICC chairman **Sean Sparling**

Independent agronomists have always been the only choice for growers who want wholly commercially untied crop advice. After all, agronomy delivered by AICC members is advice that comes with a guaranteed and demonstrable conscience.

As an independent sector, we have always been forward thinking. Now, important industry bodies, vital regulatory authorities and those who make crucial industry decisions, are realising that the AICC is the "go to" organisation when seeking essential advice that delivers results.

Our input and counsel in many schemes have been sought rabidly over the last 12 months – with several key initiatives requiring AICC endorsement. We should be proud of what we've achieved: the realisation that unbiased and commercially independent advice is invaluable to growers and the public alike.

To us, "independent" is an action rather than an aspiration.

It is easy to get disheartened as active ingredients are removed from the agronomists' armoury. But we continue to work to the highest standards on farm and at the highest levels of the industry to reassure policymakers about the importance of crop protection products to secure UK food production.

Changing rules

That said, over the last 18 months or so the rules have changed.

Until the middle of last year, we could be secure in the knowledge that we would lose active ingredients for two reasons: firstly, if crop, environmental or consumer safety became compromised; and secondly, if they were superseded by safer or better formulated products.

We could rely on the findings of replicated peer-reviewed scientific studies conducted by independent government scientists – facts which were incontrovertible – and policymakers who made decisions based on the premise that domestic food production and security were government priorities.

Those were happy days. But now every member of the public and social media warrior appears to be a leading expert – and we appear to have a minister who makes decisions based on a personal and political viewpoint rather than on science-based facts.

I sound cynical but it's hard not to be sometimes when you see how the game is playing out. Never has it been so important to make our voices heard and to stand by the courage of our convictions. Never before has it been so important to be open, unbiased and independent.

We now have little more than three years left of glyphosate – unless we all get off our backsides and do something to ensure that the five-year re-registration we had to fight so hard for is extended. I, for one, will continue to fight tirelessly for that end.

Overwhelming evidence

We have lost metaldehyde, chlorothalonil and all outdoor use of neonicotinoid seed treatments which may yet catastrophically affect sugar beet and cereals – all despite the overwhelming evidence which warned against their removal.

> "We should be proud of what we've achieved: the realisation that unbiased and commercially independent advice is invaluable to growers and the public alike

We are now forced to use more insecticides as foliar applications than we have done in decades – despite huge efforts and time spent collating data that clearly supports the continued use of those compounds now removed.

We must, of course, always support the removal of dangerous products and actives, but we must also fight just as hard – if not harder – to ensure that we can keep using products which both science and common sense say are safe.

Ultimately, we are agronomists – our job is to grow crops. If we don't have the tools available to us that we have had in the past, then we will carry on providing the best possible levels of impartial independent advice using the tools we *do* have available to us.

It becomes increasingly important then – particularly if government and the public are scrutinising all that we do in agriculture and agronomy – that independent advice becomes even stronger than it is today and, I am doing all I can to convince those who need convincing that this is the case.

The future of UK agriculture, crop production, chemical registration, food security and on-farm advice, may well be far more influenced by the AICC and the growing independent sector than we can currently conceive.

Watch this space.

The great dilemma: Do growers stick with oilseed rape?

Break crops are important to a balanced arable rotation. But winter oilseed rape is becoming riskier to grow. Here, we explore the factors to consider before finalising autumn cropping plans

Despite negativity surrounding oilseed rape after another year of losses caused by pests, two Strutt & Parker agronomists in affected areas warn against knee jerk changes to rotations.

Instead, growers should carefully evaluate alternatives and make targeted reductions in area to reduce overall risk and help maintain healthy cross-rotation gross margins.

WILLIAM DAVIES

ALICE MONTROSE

Dangerous mix

Growing oilseed rape has not been enjoyable in parts of England in 2018-19, as a dangerous mix of drought and cabbage stem flea beetle (CSFB) damage has seen swathes of the crop written off.

From data collected as part of AICC's spring CSFB survey (see p. 8-9), it is estimated that about 84,800ha or 15% of the national crop was lost by early March.

Lincolnshire-based agronomist William Davies says losses on clients' farms are in line with AICC survey results for the county, at about 5%. This year, he attributes most of his losses to CSFB larvae.

"We went into the winter feeling relatively positive about rape crops, but after the first dose of nitrogen in the spring followed by a dry spell, affected areas seemed to hit reverse and started disappearing back into the soil," he explains.

Mr Davies attributes this to favourable autumn and winter conditions, creating a longer egg laying period, generating more larvae to burrow through the main stem and take out main racemes.

"Oilseed rape is so front-loaded with costs and as we've seen this winter, you can think you've got a good crop and then it just disappears," he says.

"Currently, it is a very risky crop to grow and demands so much management effort, with an end result that can be out of good management control. That is why people are asking is it worth it?"

Spreading west

Oxford-based Strutt & Parker colleague Alice Montrose covers one of this year's worst hit regions in Northamptonshire, Buckinghamshire and Oxfordshire. About 35% of her rape area was lost to the pest.

This included whole fields decimated by adult feeding at emergence, despite being sprayed with pyrethroids. Tests on local beetle populations have shown 60% resistance to the insecticide group.

She has noticed a marked increase in pressure this year and notes that problems further east are moving west. "Interestingly, when you look to the East, where some had 90% crop loss two years ago, a break from oilseed rape last year means they are in a much better position now.

"As we've carried on growing it, the problem has continued to build and I feel we are now where eastern growers were two years ago," she explains.

Stick or twist?

Both Mr Davies and Ms Montrose report mixed feelings among growers on the future of rape, with those in hotspots such as Bedfordshire and Cambridgeshire – stung by heavy losses for a second or third time – reconsidering its place on farm.

At the opposite end of the scale, those experiencing significant problems for the first time are likely to stick with a crop that has significant rotational benefits and is financially rewarding where yields hit 3.5t/ha at a price of around £300/t.

Mr Davies say the issue of finding a viable alternative to oilseed rape is almost as troublesome as growing the crop itself, with gross margins for other crops not nearly as attractive.

Using Strutt & Parker data, and assuming dry conditions and CSFB pressure remains high, a budgeted yield of 3t/ha in 2020 still stacks up favourably, although the "risk factor" should be taken into consideration when finalising cropping plans for the upcoming autumn.

In addition to upping winter cereal areas, Mr Davies points out that Countryside Stewardship Scheme (CSS) options – such as extended over-winter cereal stubble – pay well, require no work and incur no risk.

He has also seen renewed interest in continuous wheat, as growers are familiar with the crop and it provides a relatively low risk, consistent performance.

"Oilseed rape is still a viable option, but you need to understand the risks," explains Mr Davies.

"This starts with recognising where on the farm the crop will have the best chance of successful establishment, away from game and any other factors that straight away may pose a compromise."

Land selection

Further west, Ms Montrose says few growers want to scrap oilseed rape completely, as the crop makes up a large proportion of rotations and would require a monumental shift in the way a farm is run.

Instead, her clients will be reducing their rapeseed area in a targeted way. She has visited each farm and performed an appraisal of land where OSR was pencilled in for drilling in autumn 2019.

Where ground is marginal or has a history of poorly performing crops, CSS options are being considered, along with alternative breaks such as winter beans and spring oats, to split the area down.

Ms Montrose says: "We are definitely being more selective about where we are growing oilseed rape and we've also looked at where CSS schemes or game cover are being established and making adjustments.

"If a field is surrounded by [brassicas] kale, turnips or mustard margins and a crop is drilled in the middle, the oilseed rape won't stand a chance. You are creating a year-round habitat for the flea beetle."

Where switching to alternative breaks, she emphasises the need to grow those crops well, as growers have often approached these with a "plan B" mindset and not provide the attention required.

"Unless you grow them with intent and as a priority crop, you aren't going to get the margins to compensate for the loss of the oilseed rape acreage."

> "Oilseed rape is so front-loaded with costs and as we've seen this winter, you can think you've got a good crop and then it just disappears

Reducing risk

Where rape continues to be grown in areas potentially exposed to flea beetle, there are a number of ways growers can reduce the risk of poor establishment or crop failure and limit autumn costs.

Ms Montrose says drilling flexibility is crucial. Seed should be on farm, or if home saving dressed and ready to go, at the start of August and seed-beds prepared.

Seed numbers at sowing generally need to be robust, including for hybrid and Clearfield crops, taking into account soil conditions and the establishment history of the cultivation system used.

Adequate machinery and labour will also allow a rapid response to forecast rainfall, helping seedlings take advantage of any moisture for rapid establishment, particularly if prevailing conditions are dry.

"I don't think it is necessarily about drilling early, or by the 15 August. It is just a case of going when you're going to get some rain, with the backup capacity to spray if required," she adds.

Cut costs

Mr Davies says autumn costs can be eased by using home-saved, conventional seed. But this should be tested for thousand grain weight (TGW), germination, and seed-borne diseases such as verticillium wilt.

Consideration should also be given to erucic acid levels, which can be higher when home-saving seed, leading to rejections the following harvest.

Robust phoma and light leaf spot resistance can potentially cut a two-spray autumn fungicide spray programme that includes more expensive products to one, more cost-effective spray.

Herbicide strategy can also be revised, says Mr Davies, with growers no longer requiring expensive, pre-emergence products that slow crop emergence and are sometimes applied to a crop that subsequently fails.

"We now have Belkar (halauxifen-methyl + picloram) and the Clearfield system, which allows you wait until the crop is established before taking out the broad-leaved weeds," explains Mr Davies.

"However, I still feel that Clearfield needs to be kept to situations where you have a cruciferous weed problem and not used as a risk management tool at establishment, given the increased cost of the system."

Oilseed rape advice for autumn 2019

- Appraise the suitability of fields for rape with the expectation of higher adult beetle numbers during August 2019.
- Evaluate risk and viability of other break crops before dropping OSR.
- Winter beans and spring oats offer lower-risk alternatives – where grassweed pressure permits.
- Consider stewardship options for reducing OSR area where successful winter growth could be compromised.
- Revise placement of brassicas, game cover or stewardship margins to avoid "green bridge" to OSR crops.
- Select a cultivation/planting strategy appropriate to the season and soil to provide rapid even germination of the seedlings.
- Always aim to conserve moisture if dry.
- Long stubble and companion crops can help distract the beetle.
- Drilling capacity key for planting OSR at the optimum timing.
- Get seed on farm early to minimise hold-ups.
- Cut autumn costs with home-saved seed, disease resistant varieties and by missing pre-emergence herbicide timing.

Pest problems turn growers off oilseed rape

The AICC continues to gather valuable data on cabbage stem flea beetle in oilseed rape – with surveys showing some uncomfortable truths

Latest survey data highlight the devastation being caused by increasing larvae pressure in oilseed rape and reveals a possible shift in grower attitude towards the UK's number one break crop.

AICC has conducted the Cabbage Stem Flea Beetle (CSFB) Survey since 2016, using its considerable reach across the British arable area to gather fast and reliable in-field data on the impact of the pest.

Preliminary 2018-19 survey results – collated in conjunction with Farming Online and presented at AICC's Winter Conference – predicted an alarming jump in crop losses attributed to CSFB.

Autumn 2018 assessments carried out by members on a significant 25% (151,000ha) of the 582,000ha English crop showed 74% of fields were affected and overall losses at 11% up to January.

The biggest regional increase in pest activity was seen in the South West, where a 13% crop loss was recorded and three other regions – Yorkshire (10%), East Midlands (16%) and the South East (12%) – recorded double digit percentage failures (see Figure 1).

The only exception was in the East, where losses dropped. This is thought to be because of a reduction in the crop area due to problems in previous years.

Larvae counts

AICC members also conducted larvae assessments in December 2018, with agronomists from four regions providing data on 93 oilseed rape fields.

There was significant variation in larvae counts, but overall, a substantial 52.9% of total plants assessed had five or more larvae/plant.

Past research has established that 5 larvae/plant has the potential to cause about 0.5t/ha of yield loss and is the recognised economic spray threshold for CSFB larvae, so results were a major concern for oilseed rape producers across England.

Spring update

The national survey was repeated again in March 2019 and looked to get a clearer picture of larvae pressure and whether oilseed rape crops were still being written off in the spring.

It also quizzed agronomists on their growers' attitudes to the crop and whether they were preparing to turn their back on it for the upcoming autumn.

In the spring survey, respondents accounted for 84,800ha of oilseed rape or about 14% of the current English crop.

Results showed that 79% were recording higher levels of CSFB larvae than the previous spring (see Figure 1).

Furthermore, 70% were experiencing CSFB levels far greater than expected and more than 80% were now recording higher numbers of larvae/plant than previous years.

Since November, about 5% of the crop area had been written off by CSFB larvae, with Beds (30%), Bucks (15%), Wiltshire (24%), Warwickshire (12%) and Hampshire (11%) the worst affected hotspots.

Of the 100 surveyed, 68% didn't expect to have to write off additional area beyond the early March survey period, but

Figure 4: Where might oilseed rape be dropped for 2019-20

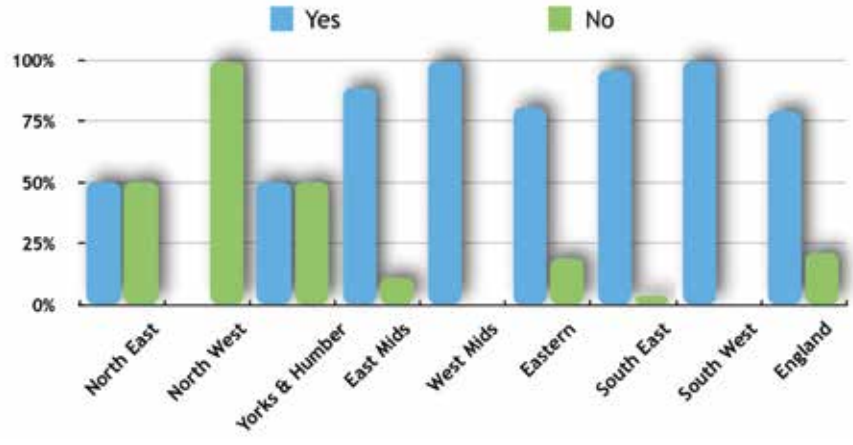


Figure 1: Are you finding higher levels of CSFB larvae this spring?

worryingly agronomists in these hotspot counties remained concerned about the future of some crops.

Losing crops at such a late stage, when considerable input cost has been incurred, will be a bitter blow to growers operating on tight margins.

Drill date

There is a debate among experts over the best time to drill oilseed rape to minimise the impact of CSFB, with earlier drilling favoured by some.

This enables the plants to establish and reach a more advanced growth stage before peak adult migration arrives, which tends to occur later in August or early September, although this is dependent on conditions.

One hypothesis is that earlier drilling results in increased larvae number in the spring. However, the spring survey results shows that this is not exclusively the case.

Figure 2 presents a relatively even split of larvae severity between the two sowing dates, except in the South West, where a majority of respondents said earlier-drilled crops were carrying higher larvae numbers.

However, analysis from crops under AICC member group, CCC Ltd's management between Kent and Dorset did show a correlation between delayed sowing date (10 September onwards) and lower larval numbers in December.

In the mild winter, a very late hatch/migration of small larvae during January and February was observed and may have caused these contradictory conclusions. The impact of this late hatch on yield will be seen at harvest.

Anecdotal evidence from 2018-19 hints that even where there was very little evidence of adult feeding damage in early-sown OSR crops, high levels of larvae were still present in the spring.

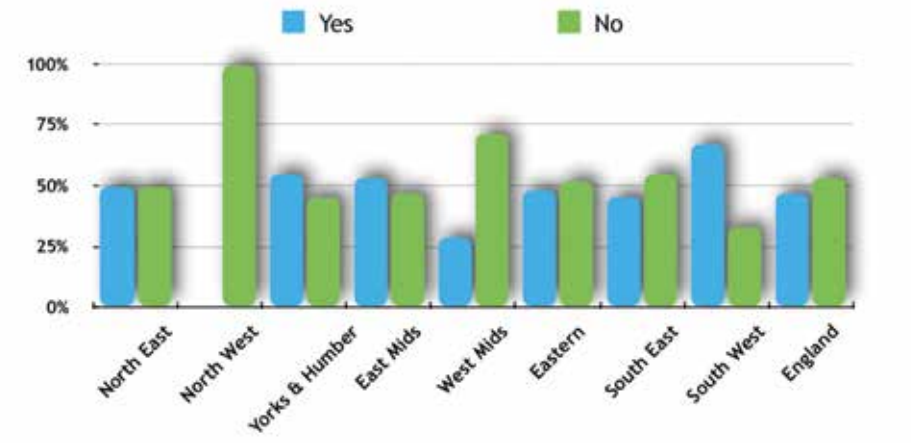


Figure 2: Are earlier (August) drilled crops carrying higher levels of CSFB larvae than later (September) drilled?

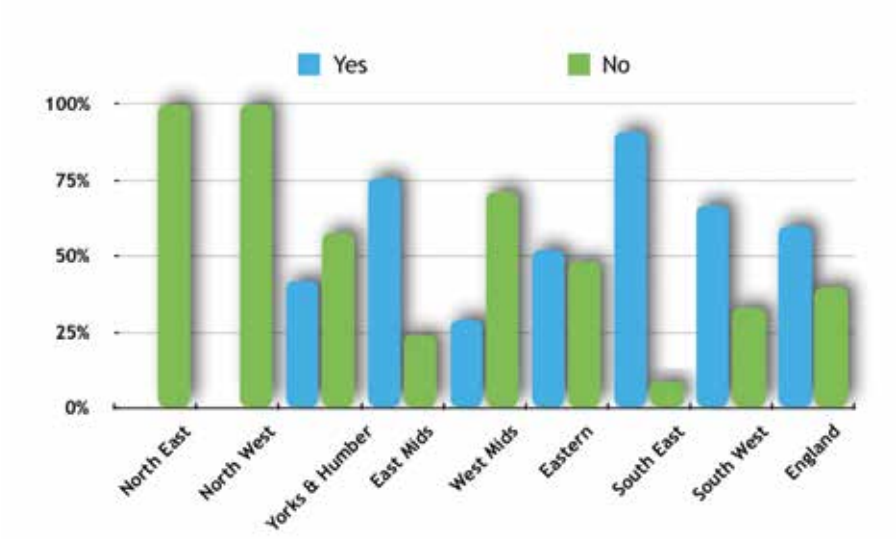


Figure 3: Are any of your growers now seriously considering removing OSR from their rotation due to CSFB larvae this spring?

This highlights the need for growers and agronomists to utilise water traps to monitor adult activity, as damage to the crop itself is not the only gauge of potential problems later in the growing season.

Oilseed rape's future

After some areas have now suffered oilseed rape losses over a number of seasons, compounded by a difficult establishment period in autumn 2018, are growers losing faith in the crop?

The spring survey asked agronomists if their clients were considering the future of oilseed rape in their rotations and what percentage of the crop would be affected by any reduction in area.

It can be seen in Figure 3 that region influences the answer, with less affected growers comfortable remaining with the crop, while those in the East Midlands, South East and South West hotspots more likely to be considering rotational changes.

Taking England as a whole, the majority of oilseed rape area could be impacted by reductions in some way, which may have big implications for the national crop.

When digging down to county level, the map in Figure 4 shows that agronomists anticipate that the biggest reductions in oilseed rape area will be in areas where CSFB has been particularly high.

But there is a clear trend of the issue moving west, where pressure is increasing, and significant reductions are predicted right down to West Country counties, Wiltshire and Dorset.

In all, the survey hints that a staggering 18% of the national crop could be dropped because of the significant risk involved in establishing and growing oilseed rape.

CSFB Survey 2018-19 – Key points

- 11% crop loss was recorded across England in the autumn
- 82% are seeing higher larvae numbers in spring 2019 than the previous year
- Between November and March 6% of the English crop was lost to larvae damage
- Earlier-drilled crops are not necessarily more prone to larvae attack
- 61% of growers are considering dropping OSR
- 18% of the English crop could be taken out of production for 2019-20
- There are clear regional differences in the level and impact of CSFB

Academy strengthens the case for independent agronomy

The AICC Academy scheme has gone from strength to strength since it was launched in 2015 to help members grow their business and future-proof the continued growth of independent agronomy. Our in-house Academy is enhancing the skills of more than 50 new agronomists who have completed their BASIS and FACTS qualifications – or are in the process of gaining them. It provides a sound technical platform to prepare for a career in independent agronomy.

CASE STUDY

RUAIRI HOLLINS Prime Agriculture, Cambridgeshire

Academy is invaluable for experienced entrant

Despite a wealth of farm management and crop production experience, Ruairi Hollins still found the AICC academy invaluable as he transitioned into a new role as an independent agronomist.

After completing a degree in Agriculture with Crop Management at Harper Adams University, Ruairi gained valuable practical farm skills in Australia and the US before returning home to Cambridgeshire.

He then moved into a management role at a cereal and root crop farm near Peterborough, where he stayed for about 10 years, completing BASIS and FACTS qualifications along the way.

Wanting to broaden his horizons beyond just one farm's gate, Ruairi took the opportunity to move into agronomy when a role at independent advisory group Prime Agriculture came up for grabs in early 2017.

Ruairi was attracted to independent agronomy because he is able to offer advice without commercial constraints, purely for the good of the farm business and its crops.

Prime Agriculture was especially attractive to him, as he has a close group of like-minded people to work with and share observations, advice and best practice.

"It is about trying to find the best answer

CASE STUDY **DAVID BOULTON** Indigro, Warks/Northants/Cambs

Business and ag-tech expands young offering

On-the-job training provided by AICC Academy has given essential business and precision farming acumen to improve fledgling agronomist David Boulton's client offering.

David specialised in crop production and agronomy modules during the latter half of his agricultural degree at Nottingham University and completed BASIS and FACTS soon after joining advisory group Indigro in May 2018.

With a solid technical foundation laid, he moved on to complete several learning modules facilitated by AICCA and one standout session was on gross margin analysis with Chris Winney at TAG Consulting.

"I found it really beneficial, as my training so far had covered agronomics and I hadn't gone into business strategy and planning in nearly as much detail," explains David.

"It gave me a good insight into the profitability of different crops and has helped me make better-informed decisions on what to grow and how to plan out a rotation."

The second standout module was a day with Ivan Grove of Harper Adams University on precision farming technology, which is playing an increasing role in modern crop production.

The Academy students were given an insight into all the available technology, its usefulness and application on farm.

This ranged from basic GPS steering guidance systems for small scale crop producers or grassland farmers to the most sophisticated and expensive RTK options for top-end arable units.

Dr Grove also covered the potential use of drones, which David says could be particularly useful across his area from Warwickshire along the A14 corridor through Northamptonshire and into Cambridgeshire where blackgrass is common.

He discovered in more detail how drones can map patches of the grassweed, allowing for more accurate targeting of management practices and monitoring of progress.

"Drones are also quite topical where the oilseed rape has failed to establish in some areas this year. They can be utilised to monitor autumn establishment and draw up application maps for spraying off poor patches with glyphosate.

"The training has given me the resources to confidently discuss the adoption and investment in these types of technologies with farmers," David explains.

Now in his second year as an independent agronomist, David is enjoying the freedom and variety of his role, which takes him across the three counties and on to farms with a range of soil types, rotations and challenges.

DAVID'S TOP FARM ADVICE

- Ensure a suitable and diverse rotation is in place to address challenges such as crop disease and weeds – in particular grassweeds such as blackgrass.
- Select the right varieties to reduce risk of disease, lodging and reliance on insecticides. Turnip yellows virus resistance in oilseed rape is one example.

For any keen to pursue a similar path, he says contacting AICC is a good place to start, as the organisation were instrumental in putting him in touch with Indigro about a potential agronomy position.

David also used events such as Cereals to expose himself to the wider industry, including plant breeders and agrochemical manufacturers, and attended regional AHDB Monitor Farm open days with his University's Agricultural Society.

"It enabled us to network with farmers, understand where they get their advice from and what they expect from their agronomist, so it was extremely useful," he adds.

for the problem at hand within the confines of a farm's regime and there is never a one size fits all solution," he explains.

"You spend time with the farmer or farm manager, discuss the best way forward and come up with the solution that suits them and the crop. That's what I enjoy about the job."

Since starting at Prime Agriculture and becoming an AICC member, Ruairi has taken a number of academy modules, which he says has brushed up his existing technical knowledge and filled in some gaps.

All modules have been useful, but of particular interest was a session on soils with NIAB soil scientist Elizabeth Stockdale, which provided AICCA students with a detailed insight into her discipline.

"It certainly increased my knowledge in the area of soil biology and emphasised the importance of soil.

"Fundamentally, everything we do is driven by the soil and its health and I often find the good farmers are the ones that look after their soils with good rotations and appropriate, well-timed cultivations," he adds.

RUAIRI'S TOP FARM ADVICE

- Farms should be ready to adapt and change to deal with pressures such as blackgrass or to improve soil health, helping to build more resilient business for the future.
- Benchmarking your business against other similar enterprises can be very useful allowing you to make appropriate changes to improve efficiency.

In addition to the module on soils, a session with NIAB plant pathologist Bill Clark helped Ruairi appreciate plant resistance in crops such as wheat and how it can be utilised by growers.

"Within your own farm, you may only grow a couple of varieties, but as an agronomist you are exposed to the full spectrum and need to know the strengths and weakness of them all," he adds.

For future independent agronomy entrants, Ruairi says a stint in farm management is not essential, but has been a good route personally, helping him understand the pressures his clients are under across all aspects of their businesses.

"I can balance and plan the timings of programmes much better, based on what they can realistically achieve with their machinery and workload," he explains.

NIAB celebrates 100 years of plant science

One of Britain's oldest agricultural science research centres is looking to the future as it celebrates its centenary, says **Bill Clark**

Founded in 1919 as a charitable trust to promote the improvement of British crops, the work of the National Institute of Agricultural Botany (as it was then) remains just as important today as it was 100 years ago. And arguably even more so.

For 100 years, NIAB has worked proudly to improve agricultural and horticultural crop production, bringing together the specialist knowledge, skills and facilities required to understand the performance and quality of agricultural crop varieties and seeds.

In recent decades, these core skills have enabled NIAB to expand its R&D activities into new and complementary areas of crop-related innovation, with a focus on applied, translational and adaptive research.

BILL CLARK
NIAB

NIAB occupies a unique space in the crop science landscape. Our R&D capabilities span the entire crop improvement pipeline – from genetics and pre-breeding to applied agronomy, soil and environmental science, precision farming and knowledge transfer on to farm.

Under the slogan Better Seeds: Better Crops, NIAB was established as a government-sponsored institute to promote the improvement of British crops by seed with higher analytical and genetic quality.

International reputation

Today, this continues to be reflected in our internationally renowned contribution to the advancement of seed testing and variety evaluation processes.

From the outset, NIAB pioneered the introduction of regional variety trials and in 1930 developed the first Farmers' Leaflets – the forerunner of today's Recommended Lists – providing an independent source of variety performance information across a range of crops.

The Official Seed Testing Station (OSTS) has been located at NIAB since 1921, and has led the development of seed testing arrangements and methods.

Over the years, NIAB's role in seed testing and evaluation has improved the quality of performance information available to farmers. It also supported the early development of the plant breeding industry and the associated regulatory frameworks for seed certification and variety registration.

Since the mid-1990s and privatisation, this unrivalled knowledge of plant varieties and seeds has provided the platform for NIAB to invest in new scientific skills and partnerships, and to transition from a quasi-government institute into a leading independent crop innovation centre.

New genetics

In 2005, NIAB established a new genetics and breeding capability, including a wheat pre-breeding platform capable of accelerating the transfer and uptake of new genetic discoveries. This research is supplying valuable traits and breeding material for incorporation into commercial wheat breeding programmes to improve yields and provide more durable disease resistance.

In 2009 and 2012 respectively, NIAB merged with TAG and the CUF Potato Agronomy Unit to become the UK's largest independent provider of applied agronomy research and knowledge transfer to farmers and their advisers – providing new expertise in cross-cutting areas of research interest such as soil management and data modelling.

And in 2016, NIAB and East Malling Research (EMR) came together, bringing world-leading expertise in top and soft fruit research and breeding, horticultural and environmental science, and complementary research skills in soil science, water use and biological control.

While there have been many changes over the years, NIAB today remains remarkably true to its original purpose. Now, 100 years on, food security is once again back on the agenda, and the world is again turning again to improved crop production.

With better seeds, varieties and agronomy, we are at the forefront of helping global food supplies keep pace with a growing world population in the face of climate change and pressure on finite natural resources.

As the UK's leading independent crop research and knowledge transfer organisation with ambitious plans for continued and sustained growth in the years to come, NIAB is uniquely positioned to respond.

Bill Clark is NIAB's technical director. For details, visit www.niab.com

How to deter pests after losing cereal insecticide seed treatment

Integrated pest management can help offset the loss of clothianidin, says Arable Alliance agronomist **Andrew Wells**

Core integrated pest management (IPM) principles of monitoring, cultural controls and timely chemical interventions is set to help manage key cereal pests without insecticide seed treatment clothianidin.

The active ingredient – contained in products such as Deter – has been an essential management tool in early-drilled cereals or regions where aphid pressure is high.

It offered six- to eight-weeks' protection against barley yellow dwarf virus (BYDV) aphid vectors when crops are most vulnerable, reducing the need for foliar insecticide sprays.

In addition to aphid protection, the seed treatment has also provided protection against gout fly and reduces the severity of slug hollowing of seed post drilling.

"A lot more management input will be required from this autumn onwards to keep on top of these problems," says Arable Alliance agronomist Andrew Wells.

Slugs

For slugs, Mr Wells says more emphasis will need to be placed on assessing populations with bait traps in high-risk situations, such as after oilseed rape or on heavier land.

Where present at threshold levels, he advises a preventative 3-5 kg/ha application of a cost-effective metaldehyde pellet 5-7 days before drilling to minimise hollowing damage.

He emphasises the need to stick to metaldehyde stewardship guidelines, despite the product being withdrawn in June 2020.

With no buffer zone restrictions, ferric phosphate-based products should be used on headlands, and some growers have already switched to the sole use of ferric phosphate to avoid complicated application logistics.

"It is just as good, the only difference is you don't see dead slugs on the surface after application, so it's less obvious what pressure you are dealing with."

Gout fly

Although not considered a major pest, gout fly can cause significant yield loss where cereals are drilled early.

Adults lay eggs on the underside of seedling leaves as they emerge in September and once hatched, larvae burrow into the centre of shoots where they overwinter.

The "gouty" stems become evident in the spring and in most situations results in reduced tiller and final ear numbers.

Mr Wells says an application of an insecticide at the 2-leaf stage for aphid control may give some incidental control of gout fly but cannot be relied upon as a control strategy.

"If there is a history of gout fly, the only option is to move the drilling date later.

"For example, if you drill between 10-15 September, the crop is up in a week due to warmer temperatures and is exposed to egg laying.

"Delaying until the 25 September will see emergence take about 10 days into early October, when there is a lot less risk," he explains.

Aphids

The most significant impact from the loss of clothianidin will be on aphid control, with all cereal >>

A scientific approach to sensible pyrethroid use is possible, says Andrew Wells

>> crops susceptible to BYDV.

Mr Wells says there is a danger the industry will start blanket spraying pyrethroids through the autumn to control aphid vectors, but this could see the rapid development of resistance to the insecticide group, as seen with other pests.

"If we lose the efficacy of pyrethroids, BYDV control will become very difficult. We need a targeted and scientific approach so growers only spray when absolutely necessary."

Delaying drilling to mid-October and beyond is an option to reduce risk in winter wheat, but winter barley is less straightforward, as crops are typically sown by the end of September.

When cereal crops are emerging during September and early October, it is almost inevitable winged aphids will be moving in to crops and can easily be spotted on sunny autumn days.

There is no established spray threshold for autumn aphid control, so as soon as aphids are found from the 2-leaf stage onwards, a pyrethroid should be applied to reduce BYDV infection.

However, it is the requirement for follow up sprays where the decision is more complicated.

The potential for a second generation of aphids after the first treatment can be estimated by accumulating daily average air temperatures above a baseline of 3C from when the protection provided by the initial treatment expires.

When a T-Sum of 170 day degrees is reached and aphids are active, a follow up pyrethroid is required and AHDB Cereals and Oilseeds launched its BYDV Management Tool last year to show when the T-Sum is reached at local level.

When combined with Rothamsted Research suction trap data to confirm aphid activity, Mr Wells says the targeted and scientific approach needed for sensible pyrethroid use is possible.

"As an agronomist, I can turn up to a farm and show when the threshold is likely to be reached and discuss how any potential treatment might fit in to the farm's workloads.

"It's one of the best tools AHDB has produced in recent years."

Controlling cereal pests without clothianidin

- Monitor slug activity ahead of drilling to establish pressure
- Consider pre-drilling application of pellets to reduce seed hollowing
- Delaying winter cereal drilling where possible to minimise gout fly and BYDV risk
- Treat cereals with a pyrethroid spray from the 2-leaf stage when aphids present
- Use suction trap data and AHDB BYDV Management Tool to inform follow-up sprays
- Use pyrethroids only when necessary to minimise resistance build-up

IPM takes centre stage at AICC Conference 2019

Former AICC member and AHDB pest control expert **Caroline Nicholls**, now at Defra, picks out some highlights from a session dedicated to IPM at the AICC's National Winter Conference in January 2019

> "Growers can increase natural predator numbers by utilising their field margins

AICC members are proactive in the practice of integrated pest management (IPM) – with regular contact between groups and individual members across the UK discussing approaches to controlling current pest, weed and disease problems on a daily basis.

The AICC is all about using every tool at our disposal and IPM will play a bigger and bigger part in the future of plant protection, says AICC chairman and Lincolnshire agronomist Sean Sparling.

"To our members, IPM isn't just the latest fad, it's a crucial area of expertise in our armoury and is firmly behind every single decision we make," he explains.

Insecticide resistance – a losing battle

Stephen Foster of Rothamsted Research opened the IPM session at the AICC conference with some sobering figures on insecticide resistance.

He stated that over 85% of peach–potato aphids are super clones and, therefore, highly resistant to the pyrethroid insecticide group, as well as carbamates, such as pirimicarb.

Dr Foster also reported on resistance statuses of other pests including grain aphid, cabbage stem flea beetle (CSFB), pollen beetle, and pea and bean weevil, which have all developed resistance to pyrethroid insecticides.

He also warned that there are potentially more pests which are resistant to pyrethroids, but we just

don't know about them yet. He forewarned that exposure to fewer insecticide modes of action will increase the likelihood of resistance developing in other pests.

It's not all doom and gloom, however, as he said some resistant insects have a fitness cost that makes them more vulnerable to attack from natural predators.

This demonstrates even more reason to hold off on insecticide spraying and to let the natural predators do their job.

New tools to support insecticide spraying decisions

After the hard-hitting messages from Dr Foster, Charlotte Rowley of AHDB went on to talk about the latest tools available to help make that important decision on whether or not to spray.

In particular Charlotte focused on AHDB's Aphid News, which provides vital information on aphid migration, and the new BYDV Management tool.

She explained that by entering the crop emergence date and location into the new tool, it can inform you, using weather data, when virus risk is high.

She also provided an update on AHDB-funded pest research, including a CSFB project which is focusing on cultural control options to reduce adult beetle and larvae numbers. The research has shown that large areas of volunteer oilseed rape left till mid-September can reduce adult damage in neighbouring fields and defoliation can reduce larvae numbers.

Mark Ramsden of ADAS then spoke about the cost:benefit of pest thresholds and also a crop's ability to tolerate a certain level of pest invasion.

He began with an important reminder of the principles of IPM as outlined in the Sustainable Use Directive, highlighting the words "monitoring" and "keep the use of pesticides to levels that are necessary". He warned, however, that it is the "knowing when it is necessary" that is vital.

He used the recently updated pollen beetle thresholds as an example of a modern threshold that takes into account crop tolerance.

He said that when assessing thresholds, other factors including crop health and population, as well as pest and natural predator population, must be taken into account.

A real assessment of cost of yield loss vs cost of treatment can then be made.

Natural predators – maximise your free pest control

Sam Cook of Rothamsted Research echoed Dr Ramsden's comments and encouraged a greater reliance on natural predators.

She urged growers to only spray when absolutely necessary and to consider the impact of insecticides on natural predators, which may actually be doing a better job than an insecticide, especially for those hard to control pests.

She pointed out that "only a quarter of insects in oilseed rape are actually pests", and that generalist natural predators, such as ground beetles and ladybirds, do a good job at controlling pests.

On CSFB, she said larvae parasitism has a significant impact on emerging CSFB adults the following year.

She concluded by saying that growers can increase natural predator numbers by utilising their field margins, especially those sown with brassicas in surrounding oilseed rape crops.

How to maximise field margins for better bug life

In order to get the most out of field margins, David George of Stock Bridge Technology provided more detail on which plants attract which insects.

He said research has shown that buckwheat, yarrow and fennel encourage parasitic wasps, whereas knapweed encourages pollinators, but can also bring in pests.

David also discussed the potential for in-crop biodiversity, such as sowing wild strips within a field to increase not only numbers of natural predators, but also pollinators, and improve soils.

This would benefit the National Action Plan, which aims to achieve the sustainable use of pesticides, but may also have a negative impact on crop yields and quality.

NFU President Minette Batters

David George of Stock Bridge Technology

> "To our members, IPM isn't just the latest fad, it's a crucial area of expertise in our armoury and is firmly behind every single decision we make

Mike Garrett of Reading University took the subject of beneficial insects a step further and spoke about the interaction of biologicals with synthetic inputs. He said "fertiliser application can only get you so far. At some point inadequate biological inputs such as poor pollination may become the limiting factor."

He also claimed his work has shown that increasing soil organic matter can increase crop yield while mineral fertilisers increase crop yield and pest performance.

Insecticide resistant crops – a stress free future

Rachel Wells of JIC closed the pest session by turning to the topic of plant breeding for insect resistance.

She has been working on feed preference studies and has found that there are links between glucosinolate levels in oilseed rape and feeding preference of CSFB and slugs.

She asserted that oilseed rape has been bred not only to suit our needs, but also to favour some of the pests.

Her genetic studies have found some promising results on pest feeding choices, so hopefully there is hope for a slug and CSFB resistant variety yet.

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