**VI/NFU IPM Plan - for farmers who predominantly grow combinable, forage, field veg and potato crops**

Completing an IPM plan annually will help ensure that opportunities to improve productivity are not missed and also help meet the market demand to see more sustainable practices and reduced reliance on pesticides. It may also be necessary for compliance with farm assurance schemes.

Numbers completing the previous VI IPM Plan annually had risen to nearly 8,000 businesses, mainly in England and Wales. The structure of this plan meant that collating information to measure the industry’s progress in adopting IPM was impossible. In addition, it did not fully recognise that one key aspect of IPM is the need to evaluate regularly the approaches adopted. So, it has been revised in order that the increasing uptake of IPM can be demonstrated to the industry’s customers and to Government and its agencies.

IPM is a whole farm approach to pest management that maximises productivity whilst minimising negative impacts on the environment (<https://europa.eu/european-union/topics/environment_en>). Individual businesses can take many different but totally appropriate approaches to adopting IPM practices. The VI/NFU IPM Plan provides scores for the different components of IPM so enabling improvements to be measured. Creissen *et al.* (2019) outline a validated scoring system, developed and refined by agricultural and social science specialists and field tested throughout the UK and Ireland. This system has statistical validity and has been subjected to peer review. We have adopted it for our VI/NFU IPM Plan. In answering individual questions and sub-questions, scores are provided for individual farm or grower businesses as well as national scores or scores according to farm size and farming system. It will let individual businesses evaluate their practices and continue to improve and develop IPM planning

The VI/NFU IPM Plan has been designed to be straight-forward and easy to complete. Data collected from individual businesses will not be published or allow businesses to be identified by inference. The VI/NFU IPM Plan is not concerned with, and does not collect data relating to, farm assurance schemes, farm support payments, Cross Compliance activities or Agri-Environment schemes. All data supplied will be treated in the strictest confidence and will be used solely for the purposes of measuring the uptake of IPM by the industry.

The VI would like to thank Henry Creissen and Fiona Burnett of SRUC and Philip Jones of the University of Reading for their help in compiling this IPM Plan. It has been based on “Measuring the unmeasurable? A method to quantify adoption of integrated pest management practices in temperate arable farming systems” by Creissen *et al.*, 2019, Pest Management Science, **75**, 3144-3152 with funding from Scottish Government Strategic Research programme, Defra, Scottish DARM, Rural Business Research (England), Department of Agriculture, Food and the Marine (Ireland) and Department of Agriculture, Environment and Rural Affairs (Northern Ireland) (https://doi.org/10.1002/ps.5428).

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*Please answer the questions as accurately as you can. Good data is needed to provide you with a realistic measure of the adoption of IPM by your business.*

* + *Please note that the term ‘****pests’ relates to diseases, weeds and invertebrate pests*** *(insects, nematodes, slugs and snails).*

*Similarly, ‘****pesticides’ refers to fungicides, herbicides, insecticides, nematicides, slug control agents and plant growth regulators***

* + *Please read question instructions carefully as the type of response required may vary from question to question.*
	+ *Please complete the survey in full.*

**Please email completed surveys to spencer.collins@nfu.org.uk**

**First Name:**

**Surname:**

**Email Address:**

**[1] How familiar are you with Integrated Pest Management (IPM)?** *Please tick one answer only.*

 [ ]  Not at all familiar (if this answer, please go to Question 3.)

[ ]  Somewhat unfamiliar

[ ]  Moderately familiar

[ ]  Familiar

[ ]  Very familiar

**[2] Which of the following factors do you consider to be important components of IPM?** *Please**place one X per row.*

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
|  | Irrelevant | Notimportant | Neitherimportant orunimportant | Important | Essential |
| **Prevent** |  |  |  |  |  |
| Adopting measures specifically to improve soil health (such as cover crops, use of organic manures/amendments etc.) in addition to optimised cultivation practices  |  |  |  |  |  |
| Practicing good hygiene (such ascleaning equipment and storage facilities, sourcing clean seed, destroying growth on potato and sugar beet dumps etc.) |  |  |  |  |  |
| Adopting biological approaches (such as sowing companion crops, sowing vegetation that host beneficial insects, beetle banks etc.)  |  |  |  |  |  |
| Adopting crop management measures (such as varying drilling dates, increasing seeding rate to control weeds, weed competitive varieties, rotating crops, exploiting varietal resistance/tolerance etc.) |  |  |  |  |  |
| **Detect** |  |  |  |  |  |
| Monitoring and surveillance of insect pests (and beneficials), slugs, nematodes, weed and disease levels. Reacting to disease/insect pressure alerts and decision support systems etc. |  |  |  |  |  |
| **Control** |  |  |  |  |  |
| Using plant protection products only when justified. Pesticide resistance management is a key element of product choice |  |  |  |  |  |
| **Assess/revaluate** |  |  |  |  |  |
| Regularly reviewing the effectiveness of methods used and considering alternative approaches |  |  |  |  |  |

**[3] What proportion of the land that you farm or manage is in continuous barley or winter wheat production i.e. growing them on the same land for 5 or more consecutive years without growing a non-cereal break crop (e.g. oilseed rape, beans, peas, grass)?** *Please tick the relevant proportion below.*

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| None [ ]  | 1 – 25% [ ]  | 26 – 50% [ ]  | 51 – 75% [ ]  | 1. – 100% [ ]
 |

**[4] Why do you practice continuous cereal production on the same fields?** *More than one answer may be provided.*

[ ]  I do not practice it

[ ]  Limited or no market for non-cereal crops

[ ] Unable to grow profitable non-cereal crops reliably

[ ] Unable to grow profitable alternative cereal crops reliably

[ ]  Climate unsuitable for other crops

[ ]  No access to machinery/equipment/storage facilities required to grow non-cereal crops

[ ]  Unable to meet end-market requirements for non-cereal crops

[ ]  Lack of knowledge required to grow non-cereal crops

**[5] If you typically use an arable rotation, why do you do this?** *Please skip this question if you only grow continuous cereals. Otherwise please place one X per row.*

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
|  | Strongly Disagree | Disagree | Neither agree nor disagree | Agree | Strongly agree |
| To control weeds |  |  |  |  |  |
| To control disease |  |  |  |  |  |
| To control insect pests, nematodes, slugs and snails |  |  |  |  |  |
| To improve or maintain soil structure and fertility |  |  |  |  |  |
| To spread costs and financial risks |  |  |  |  |  |
| Largely because it’s necessary to comply with a scheme or contractual obligations |  |  |  |  |  |

**[6a] Do you consider cultivations as part of your IPM strategy?**

[ ]  Yes

[ ]  No

**[6b] Please indicate what cultivations you do?** *More than one answer may be provided.*

[ ]  Ploughing most years

[ ]  Direct drilling (no tillage)

[ ]  Strip tillage

[ ]  Non-inversion (minimum) tillage

[ ]  Rotational ploughing (every few years)

[ ]  Regular subsoiling/mole ploughing

**[6c] Estimate the % of cultivated land that is currently ploughed**

**[7] What influences your choice of crops grown***? Please rank the top five factors you consider most important for the three most economically important crops you grow.**Please write 1 as the most important, and 5 as the 5th most important – see example column.*

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | ***Example*** | **Crop 1** | **Crop 2** | **Crop 3** |
|  | *Winter Wheat* |       |       |       |
| Local market | ***1*** |  |  |  |
| National and/or International markets | ***5*** |  |  |  |
| Soil type |  |  |  |  |
| Contribution to rotation despite a less than desirable gross margin |  |  |  |  |
| Gross margin  | ***3*** |  |  |  |
| Reliability  | ***2*** |  |  |  |
| Availability of plant protection products  |  |  |  |  |
| Availability of equipment/ machinery |  |  |  |  |
| Cash flow  |  |  |  |  |
| Reduced reliance on inputs  | ***4*** |  |  |  |
| Suited to local weather conditions |  |  |  |  |
| Tolerance of a wide range of weather conditions  |  |  |  |  |
| Crop storage  |  |  |  |  |
| Availability of labour |  |  |  |  |
| Other *(please specify)*       |  |  |  |  |

**8. What influences your choice of crop *variety* grown?** *Please rank the top five factors you**consider most important for the same three most economically important crops you grow. Please write 1 as the most important, and 5 as the 5th most important – see example column.*

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | ***Example*** | **Crop 1** | **Crop 2** | **Crop 3** |
|  | *Winter Wheat* |       |       |       |
| Recommended lists (where available) | ***3*** |  |  |  |
| Availability of seed |  |  |  |  |
| Price of seed |  |  |  |  |
| Adviser recommendation | ***1*** |  |  |  |
| End-market | ***4*** |  |  |  |
| Disease resistance |  |  |  |  |
| Weed competitiveness |  |  |  |  |
| Yield potential | ***2*** |  |  |  |
| Quality potential |  |  |  |  |
| Consistency of performance |  |  |  |  |
| Insect pest tolerance / resistance | ***5*** |  |  |  |
| Other *(please specify)*       |  |  |  |  |

**[9] Name the specific weeds, diseases, insect, nematode or slug pests which you see as being of the greatest concern to crop production on the land that you farm.** *Start with 1 = greatest concern. You do not need to fill in all boxes.*

|  |  |  |  |
| --- | --- | --- | --- |
|  | Current threat |  | Future threat (5+ years’ time) |
| 1. |        | 1. |        |
| 2. |        | 2. |        |
| 3. |        | 3. |        |
| 4. |        | 4. |        |
| 5. |        | 5. |        |

**[10] Which management measures do you currently employ to control the introduction and spread of pests on the land that you farm or manage?** *Please tick all the boxes below that apply*

1. *To prevent weeds*

[ ]  Stale/false seedbeds

[ ]  Full inversion ploughing

[ ]  Only employ non-inversion tillage when other cultural measures to reduce weed numbers are adopted

[ ]  Optimal timing for control measures

[ ]  Patch spraying of weeds with a selective herbicide (including precision farming) or weed-wiper

[ ]  Hand rogueing/mechanical or chemical crop and weed destruction before weed seeds are viable/mechanical weeding or hand hoeing weeds

[ ]  Manage cropped headlands to prevent weed ingress from non-cropped areas

[ ]  Regular cleaning of harvesting and cultivation equipment and/ or fields with high weed levels are harvested last

[ ]  Other (excluding rotations, which are covered in Q5). *(Please state)*

[ ] Crop inspections, **please indicate frequency**; during the relevant times of year *(please tick one of the following* *options):*

|  |  |  |
| --- | --- | --- |
| Weekly or more often [ ]  | Every two weeks [ ]  | Monthly [ ]  |

1. *To control disease*

[ ]  Grow resistant varieties

[ ]  Use certified seed

[ ]  Test non-certified seed and treat if required

[ ]  Regularly test soils for soil borne pathogens

[ ]  Use seed treatments where available

[ ]  Other (excluding rotations, which are covered in Q5). *(Please state)*

[ ]  Crop inspections, **please indicate frequency**; during the relevant times of year *(please tick one of the following* *options):*

|  |  |  |
| --- | --- | --- |
| Weekly or more often [ ]  | Every two weeks [ ]  | Monthly [ ]  |

1. *To control insects, nematodes and slugs*

[ ]  Encourage beneficial insects through provision of habitats

[ ]  Minimise use of broad-spectrum insecticides

[ ]  Use seed treatments

[ ]  Cultivations for control of slugs e.g. preparation of fine (consolidated) seed bed, rolling

[ ]  Regularly monitor above ground pest populations

[ ]  Set action thresholds

[ ]  Regularly test soils for nematodes

[ ]  Regularly test soils for insect pests

[ ]  Frequently clean harvesting, cultivating and storage equipment

[ ]  Other (excluding rotations, which are covered in Q5). *(Please state)*

[ ]  Crop inspections, **please indicate frequency;** during the relevant times of year *(please tick one of the following* *options):*

|  |  |  |
| --- | --- | --- |
| Weekly or more often [ ]  | Every two weeks [ ]  | Monthly [ ]  |

**[11] What factors do you consider when developing/evaluating your integrated pest management plan, either alone or with an adviser at the start and during the season?**

*Please tick those that apply.*

[ ]  This is the first time I have completed a formal plan

[ ]  Crop walking data from last season, used to assess the performance of various control measures

[ ]  Technical research on plant protection product efficacy and efficacy of cultural control measures

[ ]  Weed maps, created and monitored for changes between seasons

[ ]  Yield maps or information, used to identify areas requiring specific attention

[ ]  Cost-benefit analysis of management options

[ ]  End-market requirements

[ ]  Variety resistance

[ ]  Soil borne diseases, nematodes and insects (including slugs)

[ ]  Position of each individual crop in your planned rotation

[ ]  Pesticide anti-resistance strategies

[ ]  None of the above

[ ]  Other *(please specify)*

**[12] What factors influence your decision to adjust your spray programme (e.g. changes in timings, rates, products) throughout the season?** *Please place one X per row*

|  |  |  |  |
| --- | --- | --- | --- |
|  | No/low influence | Moderate influence | High influence |
| Growth stage of the crop |  |  |  |
| Crop economic potential |  |  |  |
| Calendar date |  |  |  |
| Resistance management |  |  |  |
| Weather conditions and forecasts |  |  |  |
| Industry crop monitoring information (e.g. aphid/disease alerts) |  |  |  |
| Predictions of Decision Support Systems (where available) |  |  |  |
| Availability of plant protection products |  |  |  |
| Lack of availability of plant protection products |  |  |  |
| Observed levels of pest/weed/disease presence in the field (including thresholds) |  |  |  |
| BASIS qualified agronomist recommendation |  |  |  |
| Actions of/advice from other farmers in the area |  |  |  |
| None of the above, I operate a fixed spraying programme |  |  |  |
| Other *(please specify)*       |  |  |  |

**[13] Do you currently use any Decision Support Systems *(please tick)***

Yes [ ]  No [ ]

**If Yes:**

A) Which Decision Support Systems (DSS) do you currently use? (Excluding Recommended Lists, which are covered in Q8)

B) Do you discuss the information contained in the DSS with your main BASIS qualified adviser?

 Yes [ ]  No [ ]

C) Do you check the latest updates to the DSS when taking decisions to treat or not to treat the crop?

 Yes [ ]  No [ ]

**If No:**

If a DSS is available for a crop you grow but you do not use it, why? *Please* *tick relevant box*:

[ ]  Lack of trust in the support tool

[ ]  Bad experience

[ ]  Have not tried any decision support system

[ ]  Not aware of them

[ ]  Lack of management time to monitor and/or implement

[ ]  Financial cost

[ ]  Other *(please state)*

**[14] How valuable are the following sources of IPM advice on managing weeds diseases, insect, nematode or slug pests?** *Please rank the top 3 sources of pest advice starting with 1 being the most valuable. After listing the top 3, please leave the rest blank.*

|  |  |
| --- | --- |
| Open days/crop walks |  |
| Farmer discussion groups |  |
| Other farmers (not including discussion groups) |  |
| Independent (e.g. AICC member) or in-house agronomist  |  |
| Agronomist employed by a distributor  |  |
| Product manufacturer representative |  |
| Contractors |  |
| Evaluating previous control strategies |  |
| Farming press |  |
| Social media  |  |
| Information and updates from membership, levy and research organisations |  |
| Other *(please specify)*       |  |

**[15] Which of the following statements best describes your relationship with your BASIS qualified agronomist.** *Please tick one only.*

[ ]  I rely on them and act on their recommendations

[ ]  I tell them what I want from them and they respond to meet my wishes

[ ]  We decide on the pest management strategy together

[ ]  I listen to their advice but will always consult other sources of information

[ ]  I listen to their advice but adjust recommendations if needed when in the field

[ ]  I don't use a BASIS qualified agronomist

**[16] Are you a member of an agronomy or crop discussion group?** *Please tick.*

[ ]  Yes

[ ]  No

*If Yes, please specify*

**[17] What is your position on the farm?** *More than one box may be ticked.*

[ ]  Owner

[ ]  Tenant

[ ]  Farm worker/ sprayer operator

[ ]  Contractor

[ ]  Farm manager

**[18] How much land do you farm or manage and what is the predominate soil type?**

|  |  |
| --- | --- |
| Predominate soil type *(place an X in only one box)* | [ ]  Medium [ ]  Organic/Peat [ ]  Clay [ ]  Silt [ ]  Sand [ ]  Other *(please state)*       |
|  |  |
| Arable |       Ha |
| Grassland |       Ha |
| Rough grazing |       Ha |
| Fallow |       Ha |
| Biodiversity scheme |       Ha |
|  |  |
| Estimate what percentage of the land you farm or manage is owned? |       % |
| Estimate what percentage of the land you farm or manage is rented/leased? |       % |
| Estimate what percentage of the land you farm or manage is contract farmed? |       % |

**[19] Have you adopted specific facilities or procedures to minimise pesticide movement to watercourses or to groundwater in groundwater source protection zones?:** *Where applicable please tick the appropriate box or boxes*

[ ]  During filling and cleaning out the sprayer

[ ]  Field operations (e.g. choice of crop or pesticide product, buffer strips, management of tramlines, weed-wiper, fencing of watercourses)

[ ]  I am involved in a water company scheme to protect water quality

[ ]  There are no groundwater source protection zones on the land farmed or managed

[ ] There are no watercourses on or immediately adjoining the land farmed or managed

**Are there any other examples of best practice that you do to protect water quality?** If so, please state here:

**[20] Your age?** *Please state (optional)*

**[21] Please state your county**

**[22] Do you have a farming qualification?** *Where applicable please tick the appropriate box or boxes*

[ ]  None

[ ]  NRoSO

[ ]  BASIS/ FACTS

[ ]  National Diploma

[ ]  Bachelor’s degree

[ ]  Higher degree

[ ]  Other *(please state)*

**[23] Are you involved in a scheme/ initiative that promotes biodiversity e.g. Countryside Stewardship, LEAF, CFE, EFS, Glastir, AECS etc.** *Please tick one box*

[ ]  Yes *(please state)*

[ ]  No

**[24] If there are any examples of good IPM practice that you consider to be particularly effective to highlight, please state below:**

**If you are happy to be contacted when this plan is being reviewed, please tick here** [ ]

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