Module 3. Weed, Pest and Disease Management

Standards

3.1.1 Canegrub Management

Practices:

Below Industry Standard -

Insecticides are routinely applied to the whole farm regardless of grub pressure, or canegrubs are not managed.

Industry Standard -

Control of cane grubs is based on monitoring plant damage, and/or risk assessment based on soil texture, and/or proximity to known adult feeding sites and topography. Grub species have been identified.

Above Industry Standard -

Grub management plan is developed based on monitoring grub levels and plant damage and applying an individual block risk assessment framework including paddock history. A district monitoring program is used to inform grub management plan (based on awareness of grub pressure on neighbouring farms and regional grub pressure).

3.1.2 Rat Management

Practices:

Below Industry Standard -

No control or monitoring of rats

Industry Standard -

Both in-crop and harbourage areas are managed to avoid build-up of rats. Baiting program implemented as required with records maintained.

Above Industry Standard -

Rat populations are monitored and managed through harbourage management and baiting as required. Records of baiting are maintained. Participates in a district monitoring program.

3.1.3 Other Pests

Practices:

Below Industry Standard -

Farm practices encourage other pests

Industry Standard -

Presence of, or potential presence of, other pests is known and management practices carried out as required.

Above Industry Standard -

Management program based on risk assessment of specific pests.

3.1.4 Weed Management

Practices:

Below Industry Standard -

Weed management strategies are generally based on historic application rates or rules of thumb without consideration of weed species mix, level of potential infestation, or environmental considerations.

Industry Standard -

Weed management plan (in line with the SRA weed plan template) is developed and implemented with consideration of known weed pressures. Specific management strategies implemented for fallow, plant cane and ratoons. Moving to a reduced reliance on residual herbicides through banding and use of knock downs in inter-rows. Spray equipment is selected to suit crop stage.

Above Industry Standard -

Integrated weed management plan is developed and implemented with a focus on controlling weeds in the fallow period, including the use of break crops. Much reduced reliance on residual herbicides through banding and use of knock downs in inter-rows. Weed mapping and GPS/variable rate technology is used to identify and manage areas of problem weeds.

3.1.5 Disease Management

Practices:

Below Industry Standard -

Mechanisms of disease spread are not considered in farm planning and operations.

Industry Standard -

Farm planning and operations take account of the mechanisms of disease spread and deliberate strategies (clean seed, variety selection, fallow management) are implemented to avoid introduction of diseases and/or spread of diseases on farm. Known diseased blocks are actively managed to reduce or eliminate disease.

All cane is destroyed at conclusion of the crop cycle. There is awareness of current regional disease risks and testing, as appropriate, for known diseases.

Above Industry Standard -

In addition to Industry Standard: a disease survey is prepared for the farm and updated each season. Rotational crops are selected on their susceptibility (or ability to host) known pathogens such as lesion and root knot nematodes.

3.1.6 Product Selection

Practices:

Below Industry Standard -

Products used are not approved (registered or permitted) for use in sugarcane in Queensland (and therefore their use does not meet regulatory requirements).

Industry Standard -

All products used are approved (registered or permitted) for intended purpose and used in strict accordance with label conditions. Products are selected in accordance with known and anticipated weed, pest and disease risks. Chemicals banned under international conventions are not used unless there is no non-banned alternative registered for use.

3.1.7 Chemical Storage, Mixing and User accreditation

Practices:

Below Industry Standard -

Chemicals are applied by people without appropriate competencies and training, or not supervised by someone with these competencies (where applicable). Chemicals are not

applied, stored, mixed or disposed of in accordance with regulatory (including label) requirements (these practices do not meet regulatory requirements).

Industry Standard -

All people who apply chemicals have the appropriate competencies and training or are supervised by someone with the appropriate competencies and training.
Chemicals are stored in premises consistent with the "Agricultural chemical user's manual" (Qld Gov 2005) in relation to location, construction, security, signage, ventilation and PPE.
Chemicals are mixed at locations on farm that meet label requirements and the requirements under Reef protection legislation.
Chemical drums are disposed of through drumMuster.
Unwanted chemicals are disposed of through Chemclear or other approved disposal systems

Above Industry Standard -

All people who apply chemicals maintain currency through industry relevant training.

3.1.8 Chemical Application and Record Keeping

Practices:

Below Industry Standard -

Products are not applied according to label and permit directions and legislative requirements under the Chemical Usage (Agricultural and Veterinary) Control Act 1988.
Application equipment is calibrated infrequently (every 12, or more, months).

Industry Standard -

Products are applied according to the label or permit directions and legislative requirements under the Chemical Usage (Agricultural and Veterinary) Control Act 1988.

and

Records of chemical management inputs are kept for each field

and

Nozzles are selected based on label requirements for product and target.

Application equipment is calibrated at the start of each season and at change of product or change of water rate.
Herbicides are applied at the ideal weed and crop growth stages

and

A chemical management plan that identifies sensitive areas, buffer zones, problem pest areas and is reviewed annually, is included as part of the Weed Management Plan.

and

Timing of chemical applications minimises loss of chemicals in runoff, and residual chemicals are applied prior to the commencement of the wet season.

Above Industry Standard -

Use of residual herbicides is reduced by: banding residuals along the drill (when not already a label requirement) and using knockdowns in the inter-row, use of automatic flow rate controllers and precision application equipment, and continuous monitoring and calibration.

3.1.9 How do you use Residual Herbicides in Plant Cane

- Complete coverage across the whole block
- Bandspraying of residuals, inter-rows managed with knockdowns
- No use of residuals

3.1.10 How do you use Residual Herbicides in Ratoons

- Whenever considered useful, multiple applications per year if required
- Single application in ratoons
- Use knockdowns with a 'spike' rate of residuals on all blocks
- Plan on using knockdowns only in ratoons and residuals in problem blocks only
- Do not use residual herbicides in ratoons

Evidence checklist for each practice standard

KEY AREA	QUESTION	EXAMPLES OF EVIDENCE REQUIRED	EVIDENCE SIGHTED	FINDING (C – BMP; C – above; NC – below; N/A)
3.1.1 Canegrub Management	**At Industry Standard** **-** Grub species have been identified. - Canegrub control decisions are based on monitoring plant damage and/or risk assessment based on soil texture, proximity to known adult feeding sites and topography.	Farm observation of grower knowledge of grub species and prevalence, AND Farm map showing affected areas, AND, where applicable, pesticide application records		
	ABOVE Industry Standard *- A grub management plan has been developed based on monitoring grub levels and plant damage and applying an individual block assessment framework, including paddock history.* *- A district monitoring program is used to inform grub management plan (based on awareness of grub pressure on neighbouring farms and regional grub pressure).*	*Grub management plan with evidence of implementation and any appropriate fine-tuning, including use of district monitoring data.*		
3.1.2 Rat management	**At Industry Standard** - In-crop and harbourage areas are managed to avoid build-up of rats.	Farm observation of management of harbourage areas including any active baiting. Records of baiting.		
	ABOVE Industry Standard *- Rat populations are monitored and managed through harbourage management and baiting as required. Participates in a district monitoring program.*	*As above plus farm observation of evidence that the control strategy is linked to farm and district monitoring.*		
3.1.3 Other pests	**At Industry Standard** - The presence of, or potential presence of, other pests is known and e management practices are carried out to address these as appropriate.	Farm observation of grower knowledge of other pests and, where required, appropriate control methods.		

KEY AREA	QUESTION	EXAMPLES OF EVIDENCE REQUIRED	EVIDENCE SIGHTED	FINDING (C – BMP; C – above; NC – below; N/A)
	ABOVE Industry Standard *- A management program has been prepared based on the risk of other pests.*	*Farm observation of management plan and its implementation*		
3.1.4 Weed management	**At Industry Standard** - A weed management plan has been developed that is consistent with the scope of the SRA Farm Weed Management Plan. Specific management strategies implemented for fallow, plant cane and ratoons. Moving to a reduced reliance on residual herbicides through banding and use of knock downs in inter-rows. Spray equipment is selected to suit crop stage. - The weed management plan is implemented.	Weed management plan showing: herbicide options to be used for particular weeds and situations (fallow, plant cane, ratoon cane, other farm areas), actions for WONS where present, and use of buffer zones as appropriate. Herbicide application records. Evidence of moving to reduced reliance on residuals. Herbicide application records.		
	ABOVE Industry Standard ***-*** *An integrated weed management plan has been developed and implemented with focus on the fallow period including use of break crops.* *- Weed mapping and GPS/variable rate technology is used to identify and manage areas of problem weeds.* *- Much reduced reliance on residual herbicides through banding and use of knock downs in inter-rows.*	*Integrated weed management Plan, and Herbicide application records* *Weed mapping, and use of precision technology* *Herbicide application records*		

KEY AREA	QUESTION	EXAMPLES OF EVIDENCE REQUIRED	EVIDENCE SIGHTED	FINDING (C – BMP; C – above; NC – below; N/A)
3.1.5 Disease management	**At Industry Standard** - Farm planning and operations consider the mechanisms of disease spread and implement strategies to avoid introduction and/or spread of disease on farm. - Known diseased blocks are actively managed to reduce or eliminate disease. - All cane is destroyed at conclusion of the crop cycle. There is awareness of current regional disease risks and testing, as appropriate, for known diseases.	Records of clean seed purchase or HWT Farm observation of farm hygiene and variety rotation. Herbicide or cultivation records Records of disease testing		
	ABOVE Industry Standard *As per Industry Standard above plus* *- A disease survey is prepared for the farm and updated each season.* *- Rotational crops are selected on their susceptibility (or ability to host) known pathogens such as lesion and root knot nematodes.*	*Record of annual disease survey* *Farm observation of knowledge and use of crops to reduce disease.*		
3.1.6 Product selection	**At Industry Standard** - All products used are approved (registered or permitted) for intended purpose and timing of application. - Products selected in accordance with known and anticipated weed, pest and disease risks and herbicide use is consistent with the weed management plan.	- Chemical use records - Chemicals listed as banned under international conventions are not used. Chemical records; Weed Management Plan or equivalent		

KEY AREA	QUESTION	EXAMPLES OF EVIDENCE REQUIRED	EVIDENCE SIGHTED	FINDING (C – BMP; C – above; NC – below; N/A)
3.1.7 Chemical storage and mixing and user accreditation	**At Industry Standard** - All people who apply chemicals have the appropriate competencies and training. (AHCCMG301/RTC3401, AHCCHM303/RTC3704, AHCCHM304/RTC3705) - Chemicals are stored in storage premises that meet the specified criteria - Chemicals are mixed at locations on the farm that meet label requirements. - Chemical drums are disposed of through drumMuster. - Unwanted chemicals are disposed of through Chemclear or other approved disposal system	Farm observation of Certificate of Attainment or ACDC licence Farm observation of chemical storage meeting the criteria Farm observation of appropriate chemical mixing location Farm observation of Drummuster receipts Farm observation of Chemclear receipts or equivalent		
	ABOVE Industry Standard *- All people who apply chemicals maintain currency through industry relevant training.*	Farm observation of Certificates of Attainment or ACDC licences		
3.1.8 Chemical application and record keeping	**At Industry Standard** - Products are applied according to the label or permit directions and legislative requirements. - The required records of chemical application are kept. - Nozzles are selected based on label requirements for product and target. - Application equipment is calibrated at the start of each season and at change of product or change of water rate.	Chemical use records AND Farm observation Farm observation of grower knowledge and practice for nozzle selection Farm observation of calibration method for spray equipment		

KEY AREA	QUESTION	EXAMPLES OF EVIDENCE REQUIRED	EVIDENCE SIGHTED	FINDING (C – BMP; C – above; NC – below; N/A)
	- Herbicides are applied at the ideal growth stages. - A chemical management plan identifies sensitive areas, buffer zones and problem pest areas. - The timing of chemical applications minimises loss of chemicals in runoff. - Residual chemicals are applied prior to the commencement of the wet season. - Total amounts of active ingredients applied per ha per year is monitored	Weed Management Plan or equivalent Chemical use records for any residuals used. <5 kg active ingredient applied per hectare per year		
	ABOVE Industry Standard *- Use of residual herbicides is reduced by banding residuals along the drill and using knockdowns in the inter-row.* *- Automatic flow rate controllers and precision application equipment are used with continuous monitoring and calibration of these.*	*Farm observation of application equipment* *Chemical use records* *Calibration/monitoring records*		