

25. Good Clover, Bad Clover

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MLA PROJECT NO.L.PDS.1706 Good Clover Bad Clover

INITIAL OUTCOMES

- In 2017 and 2018 a total of 61 paddocks were assessed from 10 properties on Kangaroo Island (KI) and the South East (SE) of SA with 44% having the potential to cause fertility issues in ewes, with visual assessments ranking them moderate to high.
- Whole farm assessments of the two focus demonstration farms have identified that 38% of the paddocks were moderate to high risk on the SE property and 60% of the paddocks were moderate to high risk on the KI property.
- Producers found that identifying all four of the oestrogenic clover cultivars was difficult.
- Undertaking paddock assessments to determine the risk rating of a paddock is time consuming for most producers.

Background

The Good Clover Bad Clover project is a joint project between the Mackillop Farm Management Group and Agriculture Kangaroo Island funded under Meat and Livestock Australia's Producer Demonstration Site program. The project commenced in April 2017 as a result of producers in the South East and Kangaroo Island raising concerns of oestrogenic clover species being present in paddocks and having the potential to cause fertility issues in their ewes.

Oestrogenic clover varieties include Dinninup, Dwalganup, Yarloop and Geraldton. These old varieties contain high levels of isoflavones which can lead to infertility problems in ewes. The effect is cumulative and sometimes permanent. Ewes may also

be more prone to prolapse during the birthing process and the spread of lambing can increase. Wethers that graze oestrogenic clover may begin to lactate and prolonged grazing may lead to enlarged bulbo-urethral glands which can result in death. Short term grazing of wethers will tend to not result in issues as they are not grazing the oestrogenic clovers for long enough. Whilst it is thought that oestrogenic pastures are 'safe' for cattle to graze, further work needs to be undertaken to validate this.

Activities

Visual assessments and laboratory testing of 25 paddocks from 10 properties across the South East region of SA and on Kangaroo Island have shown that 20 of these paddocks had the potential to cause fertility issues in ewes. Visual assessments using the stick method ranked them moderate to high.

Laboratory tests have been inconsistent when compared with visual assessments. This is thought to be largely due to sampling method and plant maturity.

This project has highlighted that whilst most producers have grasped the visual identification of problem clovers at field days, they don't have the confidence to conduct a detailed risk assessment of the paddock using the stick method back on their own property without technical advisor support. This is because the assessments of paddocks is something they find complex and time consuming.

This highlights the fact that relying on the producer to undertake risk assessments of their paddocks and properties, which is important when developing and implementing management strategies, is a barrier to addressing the issue of oestrogenic clover. Greater success for the industry may be to devise a simpler method of assessing paddocks, or training livestock advisors or agronomists to undertake paddock risk assessments.

Whole farm assessments were undertaken by technical advisors on the Focus Demonstration Farms in the South East and Kangaroo Island.

The project has attracted much interest in oestrogenic clover from within South Australia and interstate. Further work is being undertaken in WA to build on the results from this project. National recognition for the project has resulted from articles published in MLAs Feedback Magazine, The Land and AWIs publication Beyond the Bale.

Results & Discussion

Whole farm assessments have been undertaken on the Focus Demonstration Farm properties using visual assessments to identify oestrogenic clover species and the stick method to determine the risk rating.

The Kangaroo Island Focus Demonstration Farm had paddock assessments undertaken on 15 paddocks. Of the 15 paddocks, 6 paddocks were low risk, 7 were moderate risk, and 2 high (potent) (Table 1). A property plan was developed as a result. Management will involve a combination of sheep and grazing management and pasture renovation as follows:

- Pregnancy scanning
- Increase ram percentage
- Continue grazing pastures with a low ranking in the same pattern.
- Avoid grazing ewe weaners or younger ewes on the potent or moderate ranked pastures
- Continue to monitor clover composition of pastures (visually or by laboratory analysis).
- Be aware of pasture composition, particularly if the grass component is compromised.
- Renovate the potent ranked pastures with 'good' clover cultivars and ryegrass mixtures.

Table 1. Paddock assessment results Kangaroo Island Focus Demonstration Farm (2018)

Paddock	Grass%	Weed%	Clover%	Oestrog. Clover %	Clover Cultivar %	Pasture Oestrog. Score	Ranking
1	44	0	56	92	Dinninup 47 Dwalganup 45 Trikkala 3 Seaton Park 3 Mt Barker 2	52	Potent
2	47	9	45	56	Dinninup 51 Dwalganup 3 Yarloop 1 Geraldton 1 Cluster 27 Seaton Park 15 Daliak 1 Trikkala 1	25	Moderate
3	59	10	31	82	Dinninup 77 Dwalganup 4 Geraldton 1 Cluster 6 Woogenellup 4 Trikkala 3 Strawberry 2 Unknown 3	25	Moderate
4	29	18	53	93	Dinninup 92 Yarloop 1 Trikkala 3 Strawberry 2 Seaton Park 1 Cluster 1	49	Potent
5	46	4	50	63	Dinninup 50 Dwalganup 10 Yarloop 3 Cluster 33 Trikkala 4	32	Moderate

6	57	6	37	90	Dinninup 87 Dwalganup 3 Cluster 8 Daliak 1 Balansa 1	33	Moderate
7	35	13	52	67	Dinninup 67 Trikkala 21 Cluster 4 Balansa 2 Mt Barker 2 Daliak 1 Bare 3	35	Moderate
8	31	28	41	92	Dinninup 91 Dwalganup 1 Trikkala 5 Cluster 2 Daliak 1	38	Moderate
9	64	13	23	94	Dinninup 69 Dwalganup 25 Cluster 3 Seaton Park 1 Trikkala 1 Daliak 1	22	Moderate

The South East Focus Demonstration Farm had a total of 21 paddocks assessed with 13 paddocks assessed as low risk, 6 were moderate risk, and 2 were high (potent) (Table 2). A property plan was developed as a result of the whole farm assessment. Management will involve a combination of the following grazing management and pasture renovation strategies as indicated above:

- Continue grazing pastures with a low ranking in the same pattern.
- Avoid grazing ewe weaners or younger ewes on the potent or moderate ranked pastures
- Continue to monitor clover composition of pastures (visually or by laboratory analysis).
- Be aware of pasture composition, particularly if the grass component is compromised.
- Renovate the potent ranked pastures with 'good' clover cultivars and ryegrass mixtures.
- Be aware silage and hay harvested from potent pastures may also be potent.

Table 2. Paddock assessment results South East Focus Demonstration Farm (2018)

Paddock	Grass%	Weed%	Clover%	Oestrog. Clover %	Clover Cultivar %	Pasture Oestrog. Score	Ranking
1	20	2	78	74	Yarloop 71 Dinninup 3 Shaftal 19 Balansa 5 Trikkala 2	58	Potent
2	18	2	80	62	Yarloop 57 Dinninup 5 Trikkala 37 Antas 1	50	Potent
3	3	17	80	41	Yarloop 32 Dinninup 9 Trikkala 54 Woogenellup 5	33	Moderate

4	6	0	94	28		26	Moderate
5	13	10	77	32	Yarloop 35 Dinninup 7 Riverina 42 Balansa 9 Mt Barker 8 Trikkala 2 Shaftal 2 Woogenellup 2 Antas 1 Medic 1 Seaton Park 1	25	Moderate
6	19	3	78	30	Yarloop 27 Dinninup 3 Balansa 43 Riverina 23 Trikkala 2 Woogenellup 1 Shaftal 1	23	Moderate High/ moderate in winter whilst Balansa is establishing
7	24	2	74	29	Yarloop 26 Dinninup 3 Trikkala 71	22	Moderate
8	12	7	81	35	Yarloop 19 Dinninup 16 Trikkala 54 Woogenellup 7 Cluster 4	28	Moderate

Conclusions

Oestrogenic clover is far more prevalent in pastures in SA than first thought at the commencement of this project in 2017. Removing all oestrogenic cultivars from a system would be difficult but implementing agronomic, grazing and livestock management strategies can be effective in controlling the potential impacts they may have on a flock.

This project has demonstrated that producers find it difficult to identify all 4 oestrogenic cultivars and that undertaking risk assessments of paddocks is time consuming.

Undertaking assessments of individual paddocks where oestrogenic clover has been identified is important to determine the risk that individual paddocks may pose and therefore a whole farm management plan.

