

Animal Welfare Monitoring & Frequency

BACKGROUND

Investigators must ensure at all stages of their project appropriate methods of monitoring are occurring, at a frequency that is sufficient to detect deviations from normal (expected) behaviour and proportionate to any risks posed to animal wellbeing.

The [Australian Guidelines to Promote the Wellbeing of Animals Used for Scientific Purposes](#) provides a list of considerations to assist in the development of a monitoring strategy. This includes:

- clinical signs or observations that will be used to assess an animal's wellbeing or clinical condition as the project progresses
- clinical signs or combination of clinical signs that will indicate that intervention (including euthanasia) is necessary
- actions that will be taken if a problem is detected
- frequency of monitoring
- people who will conduct the monitoring, and their training
- system for the recording of observations.

INSTRUCTIONS

Complete the appropriate risk matrix/s as required to manage potential animal welfare impacts under the project.

APPENDIX I provides examples of a completed risk matrix. **APPENDIX II** provides the Temperature humidity stress index (THI) used to inform the example provided in Appendix I. Similar tools are available for determining impacts from chill, wet and wind. Researchers are asked to ensure they remain abreast of weather alerts. [Ag360](#) is a tool available for use.

Investigators are required to maintain records of this monitoring and assessment of animal wellbeing, and as required, take prompt action in accordance with intervention points and humane endpoints (as approved by the AEC). Information collected on monitoring sheets needs to ensure welfare concerns are identified and rectified in a timely manner. Monitoring records must be available to the AEC or external auditors on request.

Risk Factor: Inclement Weather

[RESEARCH LOCATION – e.g.
paddock based, metabolism crates]

Weather (as it relates to impact on metabolism)

Physiological status	Benign	Moderate	Challenging	Catastrophic
[e.g. Adult – Dry]				
[e.g. Adult - Lactating, young at foot]				

Frequency of monitoring

	Monitor every two days
	Monitor every two days, with daily monitor if indicated
	Monitor at least daily
	Monitor at least daily, with second monitor if indicated

Risk Factor: Experimental Procedures (post procedure)

[RESEARCH LOCATION – e.g.
paddock based, metabolism crates]

Experimental Procedure [as it relates to impact on animal pain, distress or recovery requirements, e.g., rumen fluid sampling, blood sampling]
Please indicate the risk by adding the appropriate frequency of monitoring and the duration this lasts

Procedure	Benign	Minor	Moderate	Major
[e.g., Rumen sampling]			2 weeks	

Frequency of monitoring

	Monitor every two days
	Monitor every two days, with daily monitor if indicated
	Monitor at least daily
	Monitor at least daily, with second monitor if indicated

APPENDIX I: Example of Risk Matrix from project undertaken at Trangie

Regular monitoring of livestock when not subject to project procedures will be undertaken in accordance with the below risk matrix.

Paddock based research

Weather (as it relates to impact on metabolism)

Physiological status	Benign	Moderate	Challenging	Catastrophic
Adult - Dry				
Adult - Mid pregnant				
Adult - Late pregnant				
Adult - Lactating, young at foot				
Weaner or young, growing stock				

Frequency of monitoring

	Monitor every two days
	Monitor every two days, with daily monitor if indicated
	Monitor at least daily
	Monitor at least daily, with second monitor if indicated

In the context of the annual sheep management calendar at Trangie ARC, the application of the above risk matrix in a 'normal year' would result in the following monitoring program:

	J	F	M	A	M	J	J	A	S	O	N	D
Adult ewes (F1)		Preg scan Crutch		Pre-lambing booster vaccination	Lambing			Crutch ?		Shearing Immersion dip	Backline for fly control (Clik)	Joining
Lambs (F2)					Lambing	Marking - vaccination			Weaning - booster vac.	Crutch		
Rams		Shear						Shear (?)	RUR inspection			Joining

Depending upon prevailing weather conditions, monitoring during November to February may become twice a day; and similarly for during lambing when extreme weather conditions may result in more frequent monitoring. Risk ratings in September, October, March and April may still remain high depending upon weather (i.e. an early start to summer, or a continuing warm period into autumn). Monitoring frequency will be modified in response to changes in risk rating.

Example 2 – Risk Matrix

Risk matrix

While sheep are involved in the experiment (October-May), they will be monitored regularly in accordance with the following risk matrix.

Sheep physiological status	Weather (temperature & RH as it impacts metabolism)			
	Benign	Moderate	Challenging	Catastrophic
Growing stock (<18 mo)				
Adult (>18 mo)				

Where:

Frequency of monitoring

	Monitor every two days
	Monitor every two days, with daily monitor if THI >24.3 (Fig. 1)
	Monitor daily
	Monitor daily, with second monitor if THI >32.3 (Fig. 1)

Management calendar

Within the context of the management calendar for the grazing experiment, the above risk matrix in an 'average year' will result in the following monitoring program:

Oct	Nov	Dec	Jan	Feb	Mar	Apr	May
Acclim	Weigh	Weigh	Weigh	Weigh	Crutching Weigh	Weigh	Weigh

Where:

Acclim = Sheep will be acclimatised on the plots October-November. Grazing experimental plots will commence November-December.

Weigh = sheep will be weighed approximately monthly.

Crutching conducted during March-April as part of the flock husbandry.

NB. Shearing is conducted August-September.

Monitoring will be twice daily during November-February when the temperature humidity stress index (THI) exceeds 32.3 (Fig. 1). Risk ratings during October and March may be high (i.e. THI >28.6; Fig. 1). In these incidences monitoring frequency will be increased to daily or greater in response to the risk rating.

APPENDIX II. Temperature humidity stress index (THI) based on the Marai *et al.* (2007) function with tolerance ranges set by Lees and Gaughan (2017).

Temperature [°C]	Relative humidity (%)										
	0	10	20	30	40	50	60	70	80	90	100
20	18.3	18.3	18.3	18.3	18.3	18.3	18.3	18.3	18.3	18.3	18.3
21	19.0	19.0	19.0	19.0	19.0	19.0	19.0	19.0	19.0	19.0	19.0
22	19.6	19.6	19.6	19.6	19.6	19.6	19.6	19.6	19.6	19.6	19.6
23	20.3	20.3	20.3	20.3	20.3	20.3	20.3	20.3	20.3	20.3	20.3
24	21.0	21.0	21.0	21.0	21.0	21.0	21.0	21.0	21.0	21.0	21.0
25	21.7	21.7	21.7	21.7	21.7	21.7	21.7	21.7	21.7	21.7	21.7
26	22.4	22.4	22.4	22.4	22.4	22.4	22.4	22.4	22.4	22.4	22.4
27	23.1	23.1	23.1	23.1	23.1	23.1	23.1	23.1	23.1	23.1	23.1
28	23.8	23.8	23.8	23.8	23.8	23.8	23.8	23.8	23.8	23.8	23.8
29	24.5	24.5	24.5	24.5	24.5	24.5	24.5	24.5	24.5	24.5	24.5
30	25.2	25.2	25.2	25.2	25.2	25.2	25.2	25.2	25.2	25.2	25.2
31	25.9	25.9	25.9	25.9	25.9	25.9	25.9	25.9	25.9	25.9	25.9
32	26.5	26.5	26.5	26.5	26.5	26.5	26.5	26.5	26.5	26.5	26.5
33	27.2	27.2	27.2	27.2	27.2	27.2	27.2	27.2	27.2	27.2	27.2
34	27.9	27.9	27.9	27.9	27.9	27.9	27.9	27.9	27.9	27.9	27.9
35	28.6	28.6	28.6	28.6	28.6	28.6	28.6	28.6	28.6	28.6	28.6
36	29.3	29.3	29.3	29.3	29.3	29.3	29.3	29.3	29.3	29.3	29.3
37	30.0	30.0	30.0	30.0	30.0	30.0	30.0	30.0	30.0	30.0	30.0
38	30.7	30.7	30.7	30.7	30.7	30.7	30.7	30.7	30.7	30.7	30.7
39	31.4	31.4	31.4	31.4	31.4	31.4	31.4	31.4	31.4	31.4	31.4
40	32.1	32.1	32.1	32.1	32.1	32.1	32.1	32.1	32.1	32.1	32.1
41	32.8	32.8	32.8	32.8	32.8	32.8	32.8	32.8	32.8	32.8	32.8
42	33.4	33.4	33.4	33.4	33.4	33.4	33.4	33.4	33.4	33.4	33.4
43	34.1	34.1	34.1	34.1	34.1	34.1	34.1	34.1	34.1	34.1	34.1
44	34.8	34.8	34.8	34.8	34.8	34.8	34.8	34.8	34.8	34.8	34.8
45	35.5	35.5	35.5	35.5	35.5	35.5	35.5	35.5	35.5	35.5	35.5
46	36.2	36.2	36.2	36.2	36.2	36.2	36.2	36.2	36.2	36.2	36.2
47	36.9	36.9	36.9	36.9	36.9	36.9	36.9	36.9	36.9	36.9	36.9
48	37.6	37.6	37.6	37.6	37.6	37.6	37.6	37.6	37.6	37.6	37.6
49	38.3	38.3	38.3	38.3	38.3	38.3	38.3	38.3	38.3	38.3	38.3
50	39.0	39.0	39.0	39.0	39.0	39.0	39.0	39.0	39.0	39.0	39.0

THI values	
No heat load	<24.3
Moderate HL	24.3 - <28.6
High HL	28.6 - <32.3
Extreme HL	>32.3