Electronic Ear Tags

What We Know So Far

BY RENEE SIEBER

What I will cover:

1. Compliance and Legislation

2. What To Do Now When:
    i. Selling Sheep
    ii. Buying Sheep
    iii. Selling Sheep Purchased Now

3. Equipment and Data
    i. Tags – Accreditation and Cost
    ii. eID Readers and Drafters
    iii. Data Collection
    iv. Software

4. Economics of using eID Tags

The rules come 1ˢᵗ Jan 2025

- All sheep and goats born, sold or transferred between PIC numbers will need to a fully accredited NLIS eID tag.

- WA will continue to use coloured tags to identify year of birth. WA will still tag according to sex.

- Earmarking will still be optional.

- eID tags will eliminate the need for pink post breeder tags **UNLESS** the original eID tag has fallen out of a purchased sheep.

	Bred on property		Brought onto property
	◁❖1RU		◁❖1XA
	Male	Female	
	tag in left ear	tag in right ear	pink tag earmark ear

Year	Year	Colour	
2013	2021	yellow	
2014	2022	red	
2015	2023	sky blue	pink tag = post-breeder tags must be pink
2016	2024	black	
2017	2025	white	
2018	2026	orange	
2019	2027	light green	
2020	2028	purple	

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All sheep and goats born, sold or transferred to a different PIC on or after the 1st January, 2025 will need to have an eID tag. This is because sheep (including newborn lambs) need to be identified when moving between properties and places in this new electronic system.

WA intends on continuing with the year of birth colour system for electronic tags, as well as tagging for sex with tags in specific ears (left - male, right - female). Earmarking will still be optional. The NLIS (National Livestock Identification System) standard for RFID (radio frequency identification) allows for year of birth colours to be used and DPIRD will legislate the requirement. If you already use eID tags make sure they are NLIS accredited, with the compliant year of birth colour and in the correct ear to avoid the need to retag.

eID tags will remove the need for having pink post breeder tags **UNLESS** the original eID tag has fallen out of a purchased sheep. Only then will you need to retag with a pink eID tag.

The rules come 1ˢᵗ Jan 2025

- Multiple eID tags cannot be on one animal.
  - One at a time!

- eID tags cannot be reused. It is with one animal for life.

- Leftover tags can be used.
  - e.g. leftover 2022 red eID tags can be used in 2030 or to retag sheep born in 2022.

- Lambs direct to slaughter must have an eID tag.
  - No exceptions to this rule for sheep producers.

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You cannot have multiple eID tags in one animal as each tag signifies a separate animal.

This means you can't re use an eID tag, it is what that sheep for life. You can however use left over tags.

Say a producer ordered 1000 red tags last year (2022), but only used 900 of them. The 100 left over tags can be used in 2030 when red comes around again or to retag sheep they bred that were born in 2022.

What is eID?

◦ eID is short for Electronic Identification Device.

◦ Each animal with an eID is unique in the National Livestock Identification system (NLIS). Tags come printed with an NLIS ID number.

◦ eID tags contain a Radio Frequency Identifier (RFID) chip. Each tag's RFID chip number is different.

What kinds of eID devices are there?
◦ For sheep – only ear tags
◦ Hock bands (goats only)
◦ Rumen boluses (cattle only)

◦ They are read by scanning wands or panel readers

eID is a shortened term used to describe all electronic identification devices. They can individually identify animals because inside each eID tag is an RFID (Radio Frequency Identification) chip. This RFID chip contains a unique number which can be linked to the NLIS ID number printed on the tag. For sheep, the only eID devices are electronic ear tags.

Think of the RFID as the VIN number of a Ute and the external NLISID like the numberplate – they both identify and can be used to trace the owner of the one vehicle.

What kind of devices are there? For sheep the only eID devices are ear tags, but for interest you can have hock bands for goats and rumen boluses for cattle. Rumen boluses are a microchip that is orally administered into cattle and sits in their gut.

What information does the tag have?

NLIS eID ear tags will come printed showing a Visual Identification Number (VID) and a unique 16 character NLISID code. It will contain an RFID microchip.
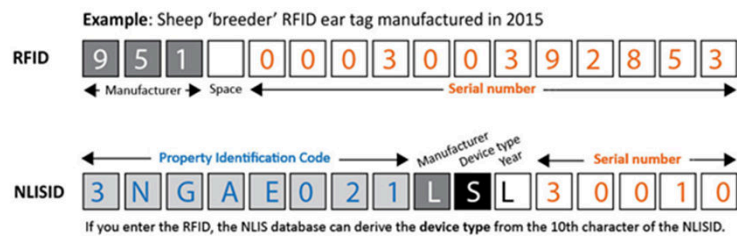
NLIS eID ear tags will come printed with a NLIS ID 16 character code and a RFID microchip inside it. This is the only information the eID tag has. It does not store data.

- The first 8 characters are the PIC of the property.

- The next 3 characters denote the tag manufacturer, whether the tag breeder (sheep S or goat K) or post breeder (sheep T or goat L) and year of manufacture (= stud year code which is a letter)

- The next 5 characters are a serial number which can be specified when ordering the tag. It can start with a letter if desired.

Common FAQs

Will all sheep on the property need to be tagged by 1st January 2025?

- No - sheep can remain on a property with a visual tag in place.
- They need to be tagged with an eID tag in order to be sold.

What happens when buying and selling sheep?

- Sheep Bought/sold via a public auction (saleyards, clearing sales and ram sales) – livestock agent completes the transfer in the NLIS Database
- Private and other sales - the receiver of the livestock is required to update the NLIS database and scan in the animals coming onto their PIC.
- Lambs being sold direct to slaughter will need to be fitted with an eID tag.

No. Older sheep can remain on a property with only a visual tag. But they need to be tagged with an eID tag in order to be sold. DPIRD recommend beginning to use eIDs now to avoid the need to retag later. This saves the cost of buying a visual tag, an eID tag as well as the labour needed to retag.

When purchasing or selling sheep though a public auction, the livestock agency in charge of the auction will deal with the transfer of the animals onto the new PIC in the NLIS database. Public auctions include saleyards, clearing sales and ram sales.

For any other sales, the receiver of the livestock is required to update the NLIS database within 48 hours and scan in the animals coming onto their PIC. You can request that the vendor or your livestock agent complete this process. You can also ask for help at your local CRC. DPIRD is planning to have an eID reader stationed at each centre and a couple staff members trained in updating the NLIS Database.

Lambs being sold direct to slaughter will need to be fitted with an eID tag. There are no exceptions to this ruling for sheep producers.

Tagging/Selling Older Stock

Selling sheep you've bred with no eID fitted to them:

Will you sell the sheep before 1st January, 2025?

If your answer is - Yes
◦ Don't need or require an eID tag to be fitted.

If your answer is - No
◦ The sheep will require an eID tag in order to be sold on and after 1st January, 2025.

◦ The Sheep need to be re tagged with an eID tag.

◦ Do NOT use a pink eID tag when retagging these sheep – that colour is for post breeder identification only.

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Will you sell the sheep before 1st January, 2025?

- Yes – It doesn't need or require an eID tag.

- No – Requires an eID tag in order to be sold on and after 1st January, 2025. You will have to retag them.

Do **NOT** use a pink eID tag when retagging these sheep to sell. That colour is for post breeder identification only.

Tagging/Selling Older Stock

Correctly tagged ewe as of 1st January, 2025 – Visual tag only, no EID tag.

The eID tag is put next to the visual tag.

Female

tag in right ear

Female

tag in right ear

So what do we do with older sheep which have visual tags?

I will show you. In this scenario we have a reg tag ewe. She has a visual tag only, no eID. When you retag the ewe, the eID tag must go next to the visual tag. The visual tag will remain in place to provide the year of birth information.

It has been confirmed via information DPIRD have released on their eID FAQ handout that yellow will be the colour used to tag older stock with an eID tag. This is if they have no electronic tag when being sold after the 1st January, 2025.

Tagging/Selling Older Stock

Yellow was the colour chosen by DPIRD to use when tagging older stock with eID tags.

Why yellow?
- Supply issues on the manufacturers end.
- Easier to order one colour and use them all at once, rather than order lots of eID tags in multiple colours.

However, if a producer wishes order eID tags and use the specific year of birth colours for older stock, there is nothing stopping them from doing so.

There will be a single colour used to tag older stock. The chosen colour is confirmed by DPURD as yellow. Why? Yellow was the national colour for breeder RFID tags before they adopted the NLIS year of birth colour system.

Supply issues on the manufacturers end. It is easier for a tag manufacturer to make, and a producer to order, a lot of one specific colour at a time and use these all up in one go rather than ordering and making lots of eID tags in multiple colours.

However, if a producer wishes order eID tags and use the specific year of birth colours for older stock, there is nothing stopping them from doing so.

Buying Sheep (Post Breeder): Pre 2025

Buying sheep now with an eID tag currently fitted:
- DO NOT tag with a pink eID tag. One eID tag on an animal at a time.
- Tag with a pink NLIS visual post breeder tag as it is not yet 1st January 2025.
- Log the transfer on the NLIS Database. Check your agent hasn't already done this.
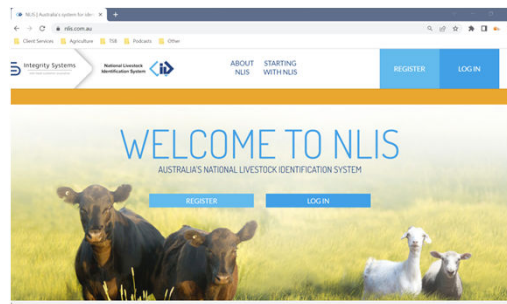
If producers have purchased sheep with an eID tag currently fitted to them they **should NOT** tag them with a pink eID tag. As I stated earlier this is because a sheep can only have **ONE** eID device on them at a time.

However, as current legislation still requires you to identify those sheep that were not bred on your property, you need to tag them with a pink NLIS visual post breeder tag. The change to not requiring pink post breeder tags will occur on 1st January, 2025.

Log the transfer of these sheep in the NLIS database as soon as possible, but check your agent hasn't already done this. Become familiar with how to use the NLIS website.

Selling Bought (Post Breeder) Sheep

Buying sheep now with no eID tag currently fitted to them:

Will you sell them before 1st January, 2025?

Yes
- Don't tag them with a pink NLIS eID tag

No
- Tag them with a pink NLIS eID tag

What happens if you don't use a pink eID now, but sell them after 2025?
- You will need to re-tag them with a pink eID tag.
- They still need to be identified as not being bred on your property before the 1st January 2025.

Brought onto property

◀▶1XA

pink tag earmark ear

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Will you sell them before 1st January, 2025?

- Yes – Don't tag them with a pink eID tag, use a pink visual tag.

- No – Tag them with a pink eID tag. Current legislation still requires you to have a pink tag identifying them as post breeder sheep. It will save you having to retag them with an eID tag later.

Make sure the transfer of these sheep from their previous property to yours is logged in the NLIS database.

You will need to retag them with a pink eID tag. The sheep will require an eID tag to be sold, but will still need to be identified as not being bred on your property.

What Do You Use?

The only eID devices producers are required to have are **fully accredited** NLIS eID tags.
◦ Tags cost approximately $2
  ◦ After Tag Incentive Payment - $1.25

Basic necessities
◦ An eID tag reader (wand) - $1 700

If producers want to use anything else let them go for it!

If they don't, an eID wand will be available to borrow at Community Resource Centres.

Other Management Gear:
◦ Scales & load bars - $2 800 - $4 000
◦ Panel readers - $1 850 - $4 000
◦ Manual drafters - $3 300 - $4 300
◦ Auto drafters - $6700 - $24 000
◦ Specialty auto handlers - $40K – $70k
◦ Barcode generators - $1 600

DPIRD have stated producers will not be required to purchase any equipment for reading tags if they do not want to. This is because any sheep purchased or sold through a public auction will be scanned at the saleyard and agents will transfer them to the new PIC.

For any private sales or internal transfers between different PICs, an eID wand will be available to borrow at Community Resource Centres (CRC). DPIRD are planning on training staff members at local CRCs on how to use the NLIS database.

Before purchasing eID equipment and tools there is a lot out there to investigate. To keep it simple, an eID wand or panel reader is all you need. To become more technical, you can invest in weigh scales, auto drafters or barcode readers (for fleece related tests).

The choice of how much you want to utilise and invest in eID equipment and tools is completely up to the producer.

NLIS Accredited eID Tags

This list for fully accredited eID tags is current as of September 2022. Tags undergo three years of infield testing to gain fully accredited status. Tags on conditional status are undergoing the accreditation process, but have not completed three years of infield testing.

Tag Incentive Programme

DPIRD implemented a Tag Incentive Programme at the start of March.
- Subsidises the cost of a tag by 0.75¢
- Ends on the 31st December 2023
- For sky blue tags only

Which tag companies does the subsidy cover?
- All tag manufacturers which supply **fully accredited** NLIS eID tags (the tags and corresponding companies in the previous slide).

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NLIS Accredited eID Tags

FULLY ACCREDITED NLIS EID TAGS

RFID	Allflex Lightweight		Allflex
RFID	Allflex Rapid		Allflex
RFID	Leader Leadertronic		Leader Products
RFID	Leader Multitronic		er Products
RFID	Shearwell ASET		Shearwell
RFID	Datamars Goat Legband *Only trialed in Australia on Saanen and Anglo-Nubian goats*		Zee Tags

CONDITIONAL ACCREDITATION NLIS EID TAGS

Visual & RFID	Zee Tags Tagfaster RFID and Visual		Zee Tags
Visual & RFID	Zee Tags FET RFID and Visual		Zee Tags
RFID	Enduro Tags Combo 2		Enduro Tags
Visual & RFID	Datamars TagFaster (with TI transponder)		Datamars Australia
RFID	Leader Multipin (Red Cap)		Leader Products

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Tag Bucket Files

Tag companies will provide you with a tag bucket file when you purchase your eID tags.
◦ Or you can download it from the NLIS database.

What is a bucket file?
◦ It is a CSV file that helps RFID software link the RFID number inside the eID tag to the VID printed on the tag

◦ Allows stick reader and weigh scale devices to display the VID printed on the eID tag rather than the RFID number.

◦ You can edit the files in Microsoft Excel

```
PIC,RFID,NLISID,Visual_ID,IssueDate,ManufactureDate,Colour
QABC1234,940 110009800101,,1,23/12/2016,23/02/2018,ORANGE
QABC1234,941 110009800101,,2,23/12/2016,23/02/2018,ORANGE
QABC1234,942 110009800101,,3,23/12/2016,23/02/2018,ORANGE
QABC1234,943 110009800101,,4,23/12/2016,23/02/2018,ORANGE
```

	A	B	C	D	E	F	G
1	PIC	RFID	NLISID	Visual_ID	IssueDate	ManufactureDate	Colour
2	QABC1234	940 110009800101		1	23/12/2016	23/02/2018	ORANGE
3	QABC1234	941 110009800101		2	23/12/2016	23/02/2018	ORANGE
4	QABC1234	942 110009800101		3	23/12/2016	23/02/2018	ORANGE
5	QABC1234	943 110009800101		4	23/12/2016	23/02/2018	ORANGE

If requested when ordering eID tags, tag manufacturers will send producers a tag bucket file after purchasing eID tags. Tag bucket files can also be downloaded from the NLIS database, as tag manufacturers have a statutory requirement to upload this file to the NLIS traceability system. The RFID and NLS ID numbers must be unique globally. What are they?

- A Tag Bucket File is a Comma Separated Values (CSV) file you upload into eID equipment and software, which provides a lookup link from the eID number to the NLIS number and the VID (Visual ID) number printed on the tag.

- This enables any eID reader and eID device in your system to display the VID printed on the eID tag, as well as the RFID number.

- You can edit the files in Microsoft Excel

If you choose to not invest at all into eID equipment and software, you will not need a tag bucket file. If you are planning on investing in eID equipment, you will need to request the tag bucket file of any sheep you purchase to programme your equipment to read their visual tag numbers. The vendor, livestock agent or NLIS database should have a copy of it.

Weigh Scales, eID Readers, Auto Drafters

Examples of equipment.

What Data Can Be Collected?

Anything you want!

Commonly Collected Information:
◦ Fleece Weight, Fibre Diameter, Staple Strength
◦ Weights – Weaner, Hogget, Adult
◦ Eye Muscle Depth, Fat Cover
◦ Nutrition
◦ Lineage (Dams and Sires)
◦ Body scores, pigmentation, cull/keep

When you sell sheep, it will be a producers choice to pass on any information you collect to the buyer. The buyer is not entitled to it.

Anything you want, but if you want to collect a wide range of data, learn how to make it clear, straightforward and simple from the start. Identify the traits and codes you want to use and stick with the same ones each year. This will make data management and analysis easier. Collect trait information according to the ASBV, age stages and trait names. Commonly collected Information:

- Fleece Weight, Fibre Diameter, Staple Strength

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- Eye Muscle Depth, Fat Cover

- Nutrition

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Software Available

Most companies which provide EID readers come with their own software to extract and interpret the data. These include the likes of Tru Test, Shearwell, Gallagher, Allflex etc.. This simple read and extract software is what the majority of producers would need and use for eID management.

Most software will use the RFID as the key data field to link trait data to the animal. If an eID is not available then the VID is used.

However if you want to collect a wider range of information and use the data in more creative ways, there are specific RFID based software companies like Sapien Technology who provide the KoolPerform and KoolCollect programmes and Breed Elite. The sole purpose of these companies is to provide producers with easy data management and analysis. Some of these come with their own in house eID scanners, auto drafters and scales producers will be required to use.

With any data management software be simple or professional, you will have to pay an annual subscription fee $300 – 1600.

The Economics of eID

ASSUMPTIONS NO EID:

Parameter	Average Output
Total Ewes	3200
% to Crossbreeds	30%
Total DSE	6000
Lambing %	95%
Wool Production (kg/dse)	4.00
Sheep Sales	2690
Cost of eID	$0
Gross Margin/dse	$34.45

COSTS OF EID:

Items Cost	$
eID Wand	1700
Scales	3000
Panel Reader	1900
Autodrafter	8000
Barcode Reader	1600
Total	**16200**
Average Annual Cost of Tags	5800
Software Costs	1000

Amortised over 10 years = approximately $2200

These are the assumptions. Main Points:

- Roughly 3200 ewes each year

- Total DSE is 6000

- Start at a 95% lambing percentage

- Selling 2700 sheep

- No eID cost

- Margin is $34.45

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The Economics of eID

OUTPUT WITH EID:

Parameter	eID Tags Only	eID Tags, Equipment & Software
Cost of eID	$3,819	$7,020
Gross Margin/dse	$33.81	$33.28
Difference to Original Margin	-$0.64	-$1.17

Exactly the same assumptions. Just now with the cost of eID tags only and the eID tags + equipment + software.

Return on Investment

Parameter	Return on Investment		
	1:01	**2:01**	**3:01**
Sheep Sales	2814	2936	3056
Lambing %	100%	105%	110%
Gross Margin/dse	$34.74	$36.18	$37.59

To get a 3:1 ROI you are:

- Increasing your lambing percentage from 100% to 110%

- Selling 242 extra sheep, of which 155 are more prime lambs and wether lambs

- Increases wool production by 0.5 of a kg/dse, which was roughly 400kg

Conceivable to remove the cost of tags form this analysis in the future. The ROI in this case is likely to change.

Reproduction Argument

Heritability for litter size is low (0.1), meaning if a ewe has a single or a twin she has a 10% chance to pass that litter size onto her offspring.

- It is influenced by other factors, such as condition/nutrition at joining, nutrition during pregnancy.

However, if a ewe lambs and loses it, or lambs and keeps it, she has a high repeatability of doing so again. Culling ewes who lamb and loss and keeping ewes who raise lambs can improve the number of lambs weaned.

Gains from selecting for reproductive traits will take longer to occur than gains from traits that have a high heritability (e.g fibre diameter).

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Reproduction Argument

| Scenario	Key Selection Decisions	Gross Margin
3	**Pregnancy scanned and twice dry ewes culled**.	$145.68
6	**Selected from twin mobs**.	$148.88
7	**Higher total kg lamb weaned**.	$148.68

This graph was taken from a 2019 MLA report "Maximising the value of existing technology for sheep producers". In this report, 7 scenarios were modelled to estimate the return using eID tags

We believe you can improve on your margin by $7.60 WITHOUT using eID, by just pregnancy scanning and culling twice dry ewes. Scenarios 3 culls ewes based on age, visual classes replacement ewes and uses preg scanning to cull twice dry ewes. All of these can be done without using eID. You could also argue that you'd make faster gains by culling them as a first dry ewe and not keeping them for the second year.

This report showed by adding eID to select replacement based on fleece trait data, wether they had twins or weaned a higher total kg of lambs, adds $3.20 to the margin. For that ts it worth it?

Better Gains in Wool?

- Modelled using the On Farm Fibre Measurement Tool

- Assumptions:
  - Ewes – 3200 | 5 age groups
  - Lambing % – 95%
  - Culling % - 8%
  - Fleece Weight – 4 kg
  - Fibre Diameter (FD) – 19 micron
  - Yield – 62%
  - FD Fleece Testing Costs - $4/hd

- For the average clip? Minimal return
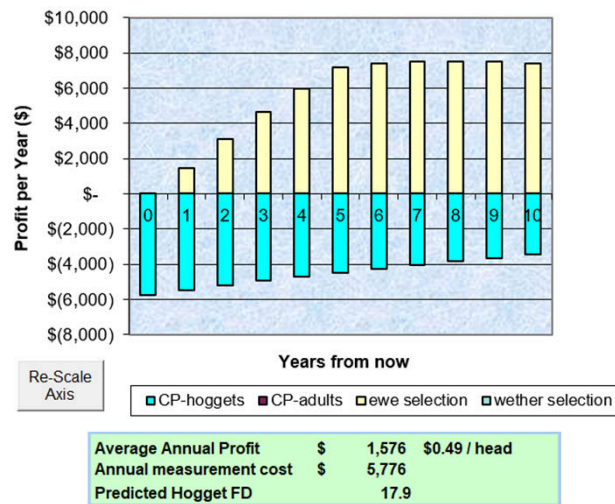
Hard to achieve for the average commercial producer.

There is 0.3 of a micron difference and 300g increase in greasy fleece weight over 10 years.

The sheep CRC has calculated culling maiden ewes that are dry (around 15% of maidens) or twice dry ewes (maiden and first year as an adult - 8% of maidens) gives a genetic gain in reproduction of around 2.5% in 10 years or around 0.25% per year.

What about including Wethers?

- Assumptions:
    - Everything the same, but added 1000 wethers | 1 age group
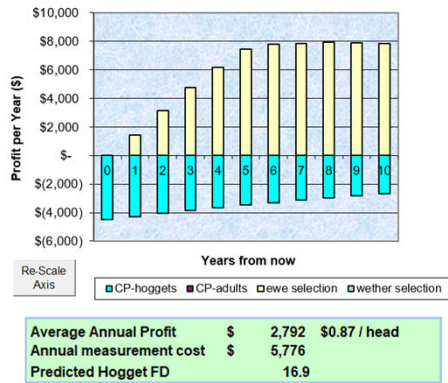
- Nothing in it
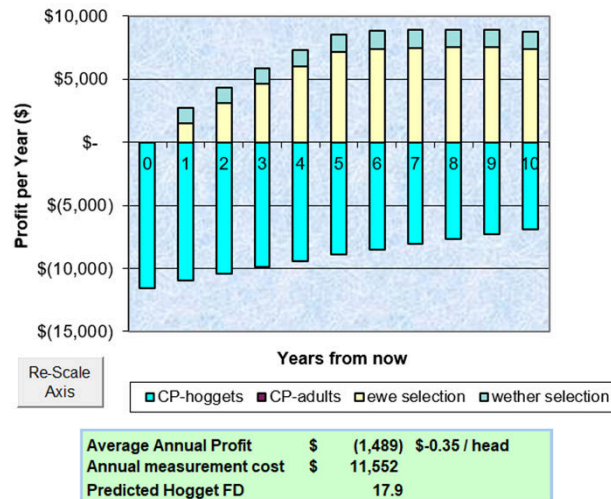
Adding wethers to this mix gives a negative return per head. By keeping wethers, you takes longer to make a genetic gain.
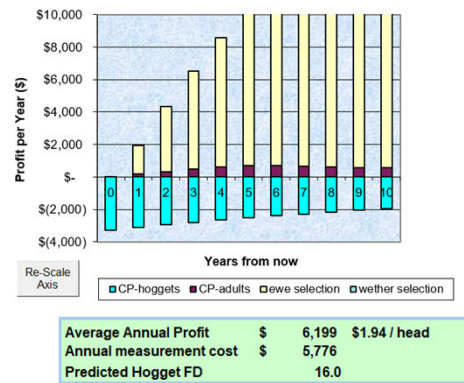
There is 0.1 of a micron difference and 100g increase in greasy fleece weight for the wethers over 10 years.

Fine Wool Enterprises

18 MICRON

17 MICRON

eID would most benefit fine wool producers. The price difference as you work towards a finer micron gives better returns.

In Summary

◦ After the 1st January 2025 all sheep born, sold and transferred between PICs will need an eID tag fitted.

◦ WA will still use coloured tags to identify age and specific ears to identify sex.

◦ There will be no need to use a pink eID when purchasing sheep unless the original eID tag falls out.

◦ Do producers need to do anything now? Technically no, but it will be harder in 2025 if they do nothing now.

◦ Selling older stock in/after 2025 with a correct visual NLIS tag can either be tagged with a coloured eID tag to match their birth year, or tagged with a yellow eID tag.

◦ Use a pink NLIS visual tag if you buy sheep now with an eID fitted already.

In Summary

◦ Use a pink NLIS eID tag if you buy sheep now with no eID tag and intend to sell them after 1st January 2025.

◦ The Tag Incentive Payment ends on the 31st December 2023. It is a discount of 0.75¢ for sky blue tags only.

◦ You don't need to have any equipment, unless you privately purchase sheep.

◦ Livestock agents will transfer sheep between PICs for public auctions.

◦ At a minimum producers will need a stick/wand reader to read eID tags. If not, they can borrow one from their local CRC.

◦ It is up to the producer collect or record information and their choice to buy any equipment to go with.

In Summary

◦ Producers are being mandated to use eIDs, but they can make genetic gains and improve sheep margins without using eID.

◦ To get a 3:1 ROI from eID you would need to
  ◦ Increasing lambing percentage from 100% to 110%
  ◦ Selling 242 extra sheep, of which 155 are more prime and wether lambs
  ◦ This increases wool production by 0.5 of a kg/dse

◦ For the average wool grower there is little returns from using eID to select for fleece traits

◦ However for fine wool producers, there is a greater price difference between 18, 17 and 16 micron that the gains are more rewarding.

◦ To implement eID producers are paying 30% more than the wool tax they are already paying. Which for Icon Clients is $8/ha. Over 1200 wgha this is approximately $10 000.

Any Other Questions?

ANY QUESTIONS REGARDING LEGISLATION I CAN ASK DPIRD