AI and Semen Handling in DIY herds

Final report to Dairy Australia for Project C100000416
Prepared by the Harris Park Group
December 2013

This research sponsored by Dairy Australia was designed and coordinated by a core group comprised of the Harris Park Group (Pauline Brightling and Anne Hope), Dairy Australia's InCalf Project Leader (Barry Zimmermann), the General Manager of the National Herd Improvement Association (Carol Millar) and two senior people who facilitated activities in the regions (Stewart McRae and Megan Dodd).

The farm appraisals were organised and conducted by Nick Brasher and Paul Kerster (FarmWest), Stephen Brown (No Bull AB Service), Linda De Win (Yarram AB Centre), Megan Dodd (Holistic Fertility Consultant), Gerard Eccles (ABS Warrnambool), Peter Murray (Hico Maffra), Andrew Parkinson (Wellbred Genetics), and Rob and Angus Richmond (Select Genetics).

Farmer interviews were conducted by Monks Communications (Lee-Ann Monks) and interviews of AI technicians and managers in the Artificial Breeding businesses were conducted by Barry Zimmermann.

Members of the Harris Park Group assisted with the evaluation (Anne Hope and Nina Philadelphoff-Puren) and financial management (Helen Pitman).

Linda De Win provided the photographs for this report.

Our sincere thanks to all those involved, including the AB centres and farmers who were willing to have a go at something new.

Anne Hope, Barry Zimmermann and Pauline Brightling
December 2013

Contents

Appendix

In short

About 58% of Australia's 6,700 dairy herds in Australia do their own AI (AI DIY). This research explored the benefits of an on-farm appraisal service provided by Artificial Breeding businesses. The service was designed to help ensure the farm's facilities, tank, and procedures were all up-to-date, and the people on-farm with significant tasks around mating were trained and confident to act. Eight AB businesses participated in the pilot and AI & Semen Handling practices were observed for 150 AI DIY operators on 112 farms across three states. This report describes practices that could be reducing conception rates on these farms.

What the pilot found

- 93% of participating farmers believed the appraisal was very worthwhile and 98% said they would recommend it to others. The opportunity to discuss the latest information with experienced AI technicians helped increase operator confidence and reinforced the importance of doing "the little things that we get a bit slack on over the years".
- While most of the AI & Semen Handling issues observed occurred between 'the tank and the cow', semen placement was an issue for about 25% of operators. Most farms had a combination of small changes to make; which is important as the sum of the small things can affect conception rates.
- The closer connect forged between service providers and clients by this service opens opportunities to support DIY farmers in other areas of herd reproductive management such as heat detection and synchrony.
- It's highly unlikely that the service will emerge spontaneously. It became apparent during the pilot that technical considerations were only half of the formula for success, the other half being the need for the management of the service provider business to believe this type of service is core business.
- Initial indications are that the smaller AB businesses see this as aligned with the 'bread and butter' of their business and are more likely to make it work.
- The research team believes there is significant potential for this resource to be used in areas where farmers have less access to professional AI technicians.

What the project team recommends

The project team recommends that Dairy Australia scale-up this initiative expanding the experience from 8 to 20 AB businesses. The industry role would be to lead, coordinate and evaluate the effort. Based on experiences from the pilot, a strong approach would be to:

- **Refine and expand the resources.** Refine the AI DIY Service Pack and provide AB businesses with ready access to supporting resources (for example a toolkit that includes the service pack, fact sheets on hot topics, links to video footage on topics such as on heat detection and semen thawing that can be viewed on iPads etc).
- **Identify and invite the next round of AB businesses to participate.** Businesses likely to benefit the most are those with technical proficiency and ways of incorporating the appraisal interactions into a commercial proposition to advance their business interests.
- **Introduce the players to the technical process and required business environment.** Hold a workshop before the mating season starts in split and seasonal calving herds (for example a session in February/March) with AI technicians and managers from the businesses attending.
- **Have NHIA lead the effort** to support those involved in the delivery and follow-up what happened 3 to 6 months later.

About this research

Purpose

Artificial Insemination enables semen from genetically superior sires to be used across all milking cows in dairy herds. It is the main route to market for the Australian dairy industry's multi-million dollar investment in technology to increase the rate of genetic gain.

ADHIS data shows cows born to AI out-perform naturally bred cows, and that there is a significant jump in herd production when more than 40% of cows in the herd are AI progeny (Australian Dairy Herd Recording Statistics 2010).

AI is performed by Do-It-Yourself (DIY) operators in more than half of Australia's dairy herds (National Herd Improvement Association 2010 Annual Report). Conception rates achieved by DIY operators were on average 3% lower than for professional AI technicians in 1998 but up to 50% of DIY's could improve their conception rate by 5% or more (the original InCalf research). This is likely to still be the case. Small changes in operator technique and semen storage and handling can improve conception rates – and ultimately the number of calves born to AI.

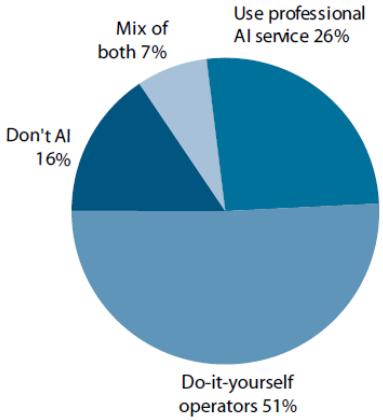
The InCalf Fertility Data Report 2011 has shown that conception rates in Australian herds declined from 49% in 2000 to 38% in 2009 in a subset of 30 herds with good reproductive data. This downward trend is consistent with other worldwide trends in fertility, with both cow and insemination factors thought to be involved. Improving conception rates and ultimately in-calf rates have been identified as a high priority by the Dairy Reproduction Steering Group of Dairy Moving Forward.

Dairy Australia, NHIA and the NCDEA have resources and training courses on best practice in this area. This research explores a new service to engage dairy farmers and promote change on farm by providing feedback on their farm facilities, procedures and AI technique at the beginning of mating.

The objectives of this study were:

1. To identify strengths and limitations of what's being done on these farms around AI & Semen handling to help inform the design of industry initiatives.
2. To explore the potential delivery of more services to AI DIY farms through their Artificial Breeding (AB) service providers.

More than half the dairy herds in Australia DIY AI
Source: NHIA 2010 Annual Report



Benefits of doing AI right on farms

Immediate	Over several seasons
• Genetic gain from AI calves • Fewer cows to mop up at the end of AI, so fewer bulls needed • Fewer late calving or carry-over cows • Fewer cows culled because they are not in calf	• Higher producing, more profitable herds • Cows stay in herd for longer: more heifers to sell and more culling options

The project design

The appraisal process was designed to help individual farms prepare for the coming mating by local AB centres providing expert feedback on the processes, techniques and facilities.

The project started Sep-2012 and finished Sep-2013 with two rounds of farm visits conducted Oct-2012 to Jan-2013 and Apr-Aug 2013 (to coincide with the start of mating in seasonal and split calving districts). Regional coordinators invited local AB businesses to participate and did a farm visit with participating AI technicians to help them build confidence in the appraisal process.

In autumn 2013 there were some concerns communicated to NHIA from advisers in NSW about DIY performance. Implementation was broadened from Victorian regions to NSW and WA in the second six months to gain a perspective on the service in year-round calving herds. Professional inseminators were not always readily accessible to farmers in these areas. New businesses joined with others involved in this research at a one-day workshop in April 2013 and attended a farm visit the following day. The farm visit enabled them to experience an appraisal with Megan Dodd and Barry Zimermann and build confidence in performing them.

Ten experienced AI technicians from 8 Artificial Breeding businesses visited 112 farms in 6 dairy regions, giving feedback to 150 DIY operators on their AI and semen handling practices. A $200 retainer was paid to AB centres for each farm visited to recompense them for their input into the evaluation. Data from the visits was collected in a structured format and the results were collated centrally.

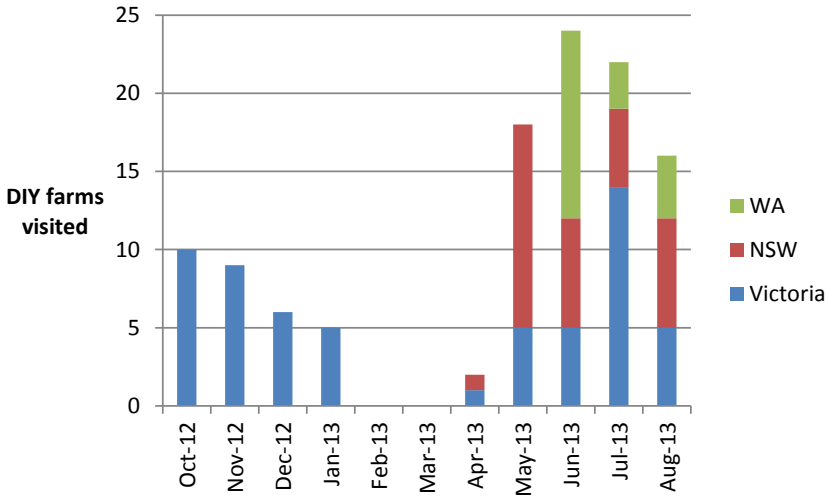
The analysis was based on observations made by experienced AI technicians during the 150 appraisals, feedback from the AI technicians and managers in participating businesses, and a survey of 40 farmers who were involved in the pilot.

Although the ultimate goal of the farm visits is to improve conception rates in participating herds, this was not one of the outcomes measured because it is influenced by multiple other factors in the farming system that affect submission rate, body condition and plane of nutrition at joining.

Professional AI technicians from 8 AB businesses assessed 150 DIY operators

Region	AB businesses	Farms	DIY operators
Western Australia	1	19	32
NSW North	1	21	23
NSW South	1	12	12
Vic North	1	5	5
Vic West	2	32	37
Vic Gippsland	2	23	24
TOTAL	8 businesses	112 farms	150 people

112 farms were visited in 3 states between Oct-2012 & Aug-2013



What doing an appraisal involved

AB centres contacted DIY clients who purchased semen from them and offered to do a farm appraisal. The offer was made by the AI technician intending to do the visit except in two of the larger businesses where an office manager organised this side of things (in one business the tech was passionate about doing the appraisals but not comfortable with the 'cold call'). Some farmers were a bit hesitant; unsure of what the sessions involved, how they would benefit and anxious about being assessed. About 60-70% of farmers contacted agreed to a visit.

All the people who were likely to do AI on the farm in the coming mating season were encouraged to attend the session on their own farms. Farmers were asked to use their own tank, semen and yards to directly appraise the procedures and practices relating to their farm.

Farmers were asked to hold back 5 cows per operator, most preferring to use cows on heat rather than empties. Multiple cows meant the techs could "stand, watch and absorb" which proved important for picking up on the "small things that weren't quite right". In the words of one technician "I know after 3 but preferably use 5 as this confirms what's going on".

Checklists were used to ensure all the important things concerning AI and semen handling were systematically covered at each farm visit. The lists were originally created as part of InCalf's 'AI Do It Right' module then refined through multiple group interactions, cross checking with NHIA given that they are the lead agency for training in this area. The checklists and instructions for preparing for a farm visit were combined into an 'AI DIY Service Pack' (per the Appendix).

The appraisal visit provided farmers with detailed feedback around semen storage, handling, thawing, insemination practices and facilities on their farm, and was delivered in a way that enabled open discussion in areas of interest to the farmer.

Resources used in the pilot

AI & Semen Handling Farm Visit Pack

- *8 pages including how to prepare for 'The farm visit', a 'Farm Profile Sheet', a "DIY Inseminator Checklist' and a 'Farm Procedures Checklist'*
- *For organising and conducting farm appraisals*

AI & Semen Handling Information sheet

- *Single sheet describing research aims and who to contact*
- *Introduces the concept to AB managers and staff*

The length of the farm visit varied between operators and the number of inseminators being assessed. It typically took about 15-20 minutes to set-up a visit, 30-90 minutes to do the visit and another 30-60 minutes to do the paperwork.

Farm profiles were also collected in the pilot to build a better understanding of reproductive management practices on DIY farms. Farmers were asked for their permission to contact them at a later date to provide feedback about the process.

The findings and recommendations from this pilot are described in the two sections that follow:

1. AI and semen storage and handling practices on farms.
2. A new service for AI DIY clients.

AI and semen storage and handling practices on farms

Research question: What are the AI and semen storage and handling practices on DIY farms?

Profile of the DIY operators

Data from table on page 7

The DIY operators participating in this study were highly experienced and on the whole very competent inseminators. Over half had done their AI training before 1997, were responsible for inseminating most (90% plus) of the cows in the milking herd, and had done between 100 and 500 inseminations last year. The surprising finding was that it had been 12 years or more since their most recent training for half the DIY operators in this pilot. Yet breeding management has moved on since the 1990s with increasing use of synchrony, changes in cow genetics and the advent of sexed semen - and even small shortcuts can lead to problems.

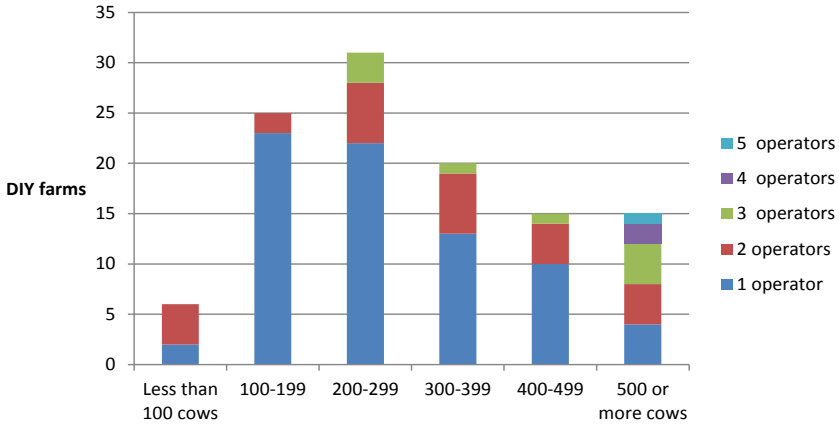
Farms typically had one or two people doing the inseminations: a single person on 47% of farms and two operators on 29% of farms. Employees tended to inseminate the cows (rather than the heifers) and had usually done up to 100 inseminations last year.

Year-round herds with more than 500 cows had more than three DIY operators on average (range 2-6).

Almost one quarter (24%) of DIY operators in split calving herds did more than 500 inseminations last year.

A higher proportion of heifers were inseminated in seasonal calving herds than in split or year-round calving herds.

Herds typically had one or two people inseminating



Large year-round herds had more than three operators on average

Herd size	Average number of DIY operators		
	Seasonal	Split-calving	Year-round
Less than 100 cows	1.0	2.0	1.8
100-199	1.0	1.2	1.1
200-299	1.0	1.3	1.7
300-399	2.0	1.3	1.5
400-499	1.0	1.5	1.0
500 or more cows	1.0	2.1	3.4

Cross tabulations of DIY operators by state, calving system, herd size and role on farm

AI DIY operator characteristics	By State			By Calving system			ALL[a]
	Victoria	NSW	WA	Seasonal	Split	Year round	
DIY operators in the pilot	52	66	32	20	68	62	150 operators
Proportion of							
Milking herd they usually AI (median)	100%	80%	33%	100%	90%	90%	90% cows
Heifers they usually AI (median)	30%	30%	20%	78%	30%	30%	30% heifers
Inseminations done last year							
100 or less	25%	36%	61%	40%	33%	39%	36% operators
101-500	47%	58%	29%	50%	43%	50%	47% operators
More than 500	28%	6%	10%	10%	24%	11%	17% operators
Year of initial AI training							
Median	1994	1993	2000	1990	1998	1998	1997
Range	1971 to 2013	1970 to 2013	1965 to 2013	1972 to-2011	1971 to 2013	1965 to 2013	1965 to 2013
Time since most recent training (median)	11 years	20 years	5 years	11 years	11 years	16 years	12 years

a) This includes family members and others in addition to owner-manager, sharefarmer and employee

AI DIY operator characteristics	By Herd size				By Role on farm		ALL[a]
	Less than 200	200-299	300-499	500 or more	Owner-managers & sharefarmers	Employees	
DIY operators in the pilot	32	41	44	33	112	28	150 operators
Proportion of the							
Milking herd they usually AI (median)	100%	100%	90%	40%	100%	20%	90% cows
Heifers they usually AI (median)	55%	35%	35%	2%	50%	1%	30% heifers
Inseminations done last year							
100 or less	45%	32%	30%	42%	25%	74%	36% operators
101-500	52%	55%	44%	35%	53%	26%	47% operators
More than 500	3%	13%	26%	23%	22%	None	17% operators
Year of initial AI training							
Median	1993	1998	1997	1996	1993	2009	1997
Range	1972 to 2012	1965 to 2013	1971 to 2013	1970 to 2012	1965 to 2013	1984 to 2013	1965 to 2013
Time since most recent training (median)	15 years	17 years	12 years	5 years	16 years	2 years	12 years

a) This includes family members and others as well as owner-managers, sharefarmers and employees

Profile of reproductive management in participating herds

Data from tables on pages 10 & 11

45% of DIY farms in the pilot had 300 or more cows. The median herd size was 280 cows (range 33 to 1200 cows).

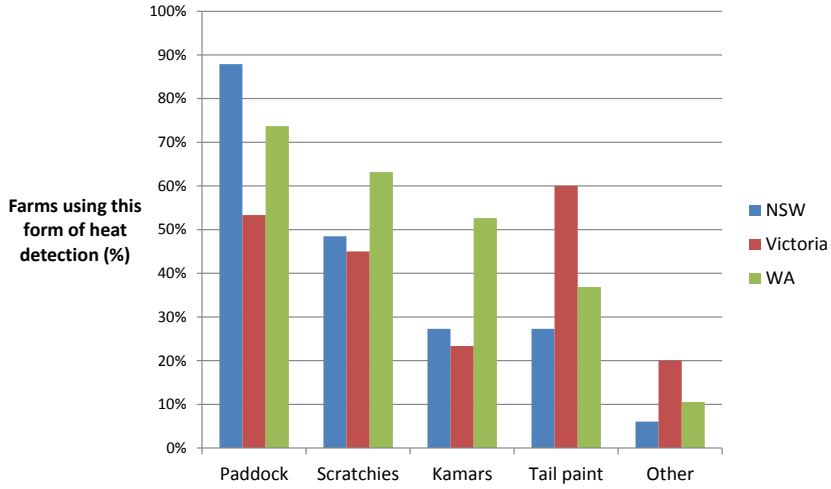
On average two people were responsible for doing heat detection in herds. 70% of herds were using two or more heat detection aids, which is the recommended industry practice. Paddock observation was used on 78% of farms, tail paint on 69%, scratchies on 66% and Kamars on 50% of farms. Cow observation and scratchies were a mainstay for the year-round calving herds especially in New South Wales, and tail paint for seasonal calving herds. Scratchies were universally used in herds of 500 cows or more in the pilot herds. 88% of farms use the same methods of heat detection to pick up the returns.

Most farms were satisfied with the effectiveness of heat detection aids but were less positive about the time put into heat detection and the ability of workers on the farm to detect cows on heat.

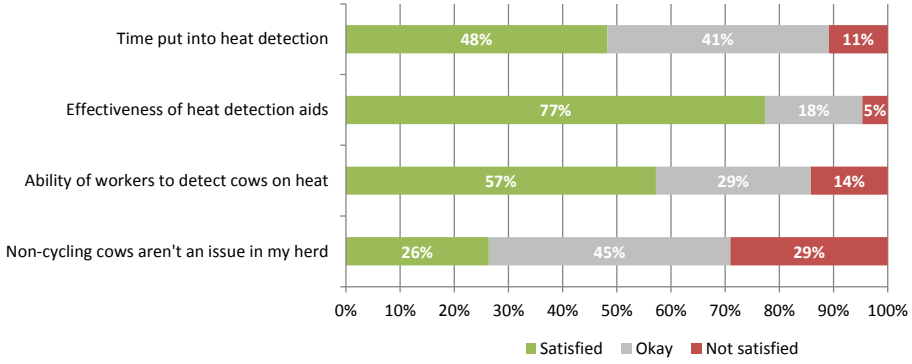
39% of herds identify non-cycling cows before mating. The identification of non-cycling cows for mating was highest in year-round herds in New South Wales. About three quarters (77%) of these herds undertake some form of intervention such as the use of CIDRs, prostaglandin or organising a vet check. 29% of farmers felt non-cycling cows was an issue for their herd.

The level of farmer satisfaction with the aspects of heat detection and non-cycling cows described here varied between the regions.

The mix of heat detection aids used differs between regions



48% of farmers were satisfied with the time put into heat detection



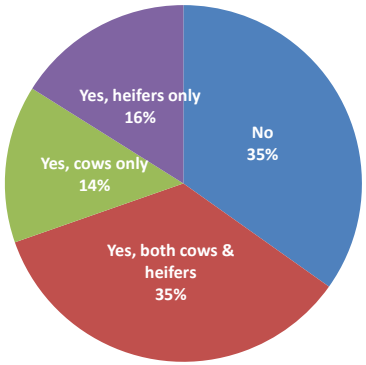
About one third of herds sometimes used professional technicians, with the rate increasing as herd size increases. Although the level was higher in split calving herds than other calving systems, seasonally calving herds had more of their cows professionally inseminated on average (31% compared to 19% of cows). Professional technicians were also used at a slightly higher rate in herds that use synchrony programs for their cows.

65% of DIY herds used synchrony programs in some form in the herd. Synchrony programs were most common in split calving herds with 44% using programs for their cows and heifers and another 36% in cows or heifers. Herds that used synchrony programs on the cows were more likely to pregnancy test - and to pregnancy test the cows before 17 weeks.

77% of farms had their herd pregnancy tested. The level was higher in herds that used synchrony programs on cows (as noted above), in Western Australia, and in herds with 300 or more cows. Conversely the level was lower in year-round calving herds. On average 7 in every 10 farms that pregnancy tested entered these results on a computer.

AI records were regularly kept for every insemination on all farms: the date, the cow ID in the bull used. The DIY operator was more likely to be recorded in year-round calving herds, herds with 500 or more cows, and in herds using synchrony programs. However results were only available electronically on 62% of farms - and even less frequently in herds of less than 200 cows, and year-round calving herds in New South Wales. The batch numbers of semen were rarely recorded.

Some form of synchrony program was used in 65% of DIY herds



Date, cow ID and bull were routinely kept for every insemination - but not necessarily electronically

Cross tabulation of repro management practices by state and by herd size

Repro management practices	By State			By Herd size				ALL
	Victoria	NSW	WA	Less than 200	200-299	300-499	500 or more	
Number of farms in pilot	60	33	19	31	31	35	15	112 farms
Average number of persons per farm								
Doing heat detection	1.8	2.6	2.5	1.6	2.1	2.5	2.8	2.1 people
Doing AI	1.3	2.3	2.4	1.4	1.6	1.9	3.1	1.8 people
Use of heat detection aids								
Paddock observation	66%	96%	77%	86%	73%	77%	70%	78% farms
Scratchies	53%	88%	86%	46%	76%	65%	100%	66% farms
Kamars	35%	75%	71%	40%	56%	61%	29%	50% farms
Tail paint	70%	69%	63%	80%	73%	57%	70%	69% farms
Use synchrony programs								
In cows & heifers	30%	36%	47%	19%	32%	46%	50%	35% farms
In cows only	20%	6%	10%	19%	16%	9%	30%	14% farms
In heifers only	15%	18%	15%	16%	23%	14%	7%	16% farms
Farms that sometimes use professional techs	47%	13%	42%	23%	33%	46%	50%	36% farms
If do, % herd professionally AI on average	8%	21%	25%	28%	14%	17%	31%	20% cows
Pregnancy test	78%	66%	89%	55%	77%	89%	93%	77% farms
Of those that do, preg test before 17 weeks	83%	86%	82%	59%	91%	87%	93%	84% farms
Of those that do, enter results on computer	72%	61%	81%	31%	71%	84%	92%	71% farms
Ever used sexed semen	48%	30%	42%	29%	35%	57%	47%	42% farms
Records regularly kept for every insemination								
Date of AI	100%	100%	100%	100%	100%	100%	100%	100% farms
Cow ID	100%	100%	100%	100%	100%	100%	100%	100% farms
Bull used	100%	100%	100%	100%	100%	100%	100%	100% farms
Operator	50%	82%	84%	66%	69%	57%	79%	66% farms
Batch number	5%	12%	None	11%	None	3%	15%	6% farms
If used sexed semen, recorded this detail	89%	100%	100%	78%	100%	89%	100%	93% farms
These records available electronically	68%	41%	79%	19%	71%	83%	86%	62% farms
Identify non-cycling cows[a]								
Before mating	21%	53%	42%	45%	39%	38%	30%	39% farms
After mating	76%	73%	100%	70%	84%	79%	100%	81% farms

a) 31 Victorian herds not included in this measure due to a change in the question

Cross tabulation of repro management practices by calving system and by use of synchrony programs

Repro management practices	By Calving system			By Use of synchrony programs				ALL
	Seasonal	Split	Year round	No	Yes, both cows & heifers	Yes, cows only	Yes, heifers only	
Number of farms in pilot	19	54	39	39	39	16	18	112 farms
Average number of persons per farm								
Doing heat detection	1.6	2.1	2.5	2.0	2.3	2.1	2.3	2.1 people
Doing AI	1.2	1.8	2.1	1.6	2.2	1.9	1.6	1.8 people
Use of heat detection aids								
Paddock observation	69%	70%	92%	77%	88%	50%	80%	78% farms
Scratchies	47%	61%	91%	48%	69%	75%	90%	66% farms
Kamars	25%	56%	56%	19%	64%	75%	55%	50% farms
Tail paint	86%	68%	59%	58%	66%	84%	81%	69% farms
Use synchrony programs				n/a	n/a	n/a	n/a	
In cows & heifers	16%	44%	31%					35% farms
In cows only	16%	19%	7%					14% farms
In heifers only	10%	17%	18%					16% farms
Farms that sometimes use professional techs	37%	50%	16%	23%	44%	62%	23%	36% farms
If do, % herd professionally AI on average	31%	19%	10%	15%	26%	21%	8%	20% cows
Pregnancy test	74%	85%	66%	56%	92%	93%	72%	77% farms
Of those that do, preg test before 17 weeks	79%	87%	80%	63%	91%	92%	84%	84% farms
Of those that do, enter results on computer	50%	82%	64%	43%	85%	79%	75%	71% farms
Ever used sexed semen	21%	59%	28%	26%	64%	31%	39%	42% farms
Records regularly kept for every insemination								
Date of AI	100%	100%	100%	100%	100%	100%	100%	100% farms
Cow ID	100%	100%	100%	100%	100%	100%	100%	100% farms
Bull used	100%	100%	100%	100%	100%	100%	100%	100% farms
Operator	50%	59%	82%	50%	77%	64%	75%	66% farms
Batch number	5%	6%	6%	6%	9%	0%	6%	6% farms
If used sexed semen, recorded this detail	75%	93%	100%	78%	100%	80%	100%	93% farms
These records available electronically	42%	83%	44%	41%	79%	81%	56%	62% farms
Identify non-cycling cows[a]								
Before mating	18%	29%	54%	31%	52%	42%	27%	39% farms
After mating	91%	79%	79%	75%	85%	75%	87%	81% farms

a) 31 Victorian herds not included in this measure due to a change in the question

Note crosstabs by production were not possible as these figures were provided by only half the herds.

What is being done on-farms

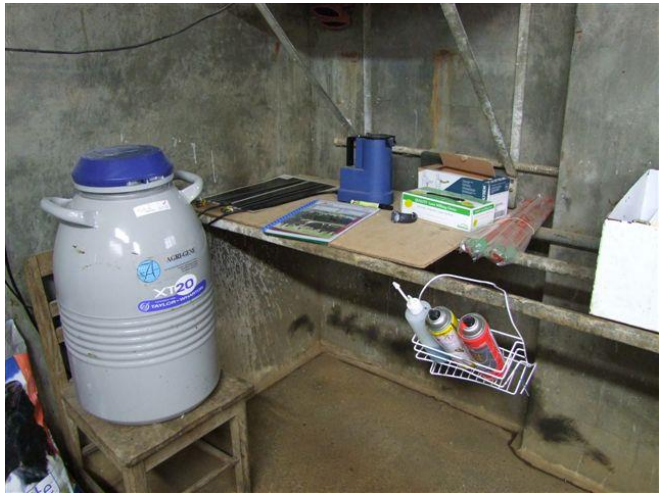
Data from tables on page 13

A wide variety of high risk management practices were identified during the appraisals. A list of the 'Top 10' is given below. While most of the issues observed occurred between 'the tank and the cow', semen placement was an issue for about 25% of operators (instead of inseminating just past the end of the cervix many were getting through then inseminating too deep).

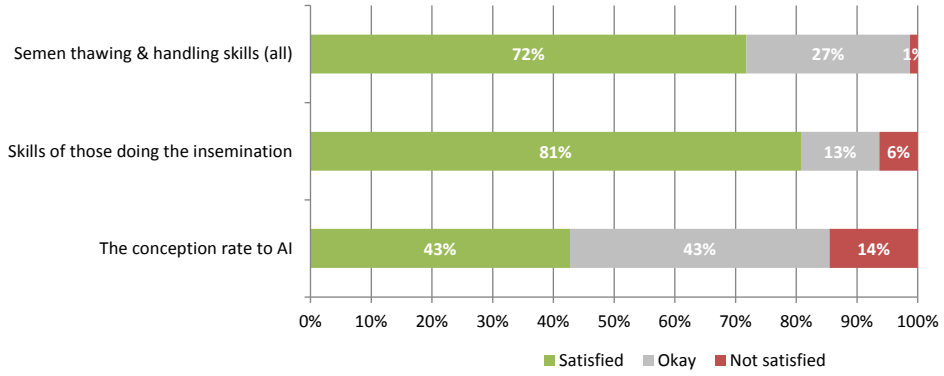
The Top 10 high risk practices observed during the study:

1. 26% of operators placed semen too deep (beyond 1cm past the end of the cervix) (Question 4.3 in the Inseminator Checklist)
2. 17% of operators didn't get through the cervix (4.2)
3. 34% of operators did not normally warm the gun on a cold day (2.10)
4. 25% of operators had water levels too high or too low (2.6)
5. 19% of operators did not check the water temperature in the flask during the AI process (2.5)
6. More than half the farms using auto thawers did not check them at the start of the season or monthly (6.6 & 6.7)
7. 26% of operators did not keep loaded guns warm and free of contamination (3.2)
8. Over 15% did not take measures to ensure hygiene at entry into cow (3.3 & 3.4)
9. 16% of operators did not dry the straw properly (2.7)
10. 21% of operators flicked the straw (2.8)

The NHIA AI Training Manual describes best practice for semen storage, handling and AI, and explains the reasons underpinning each of the recommendations. This industry resource is currently being updated and a new version will be available in 2014.



43% of farmers were satisfied with the conception rate AI, another 43% thought it was OK



Overview of AI & Semen Handling for 150 DIY operators

150 DIY operators

Handling straws		Circle		Comments
1.1	***Inventory*** list was consulted before lifting canister (specs used if needed)	Y	N	93% YES
1.2	Canister was lifted to the ***frost line*** of tank when picking straws	Y	N	72%
1.3	Straws were transferred to the thawing flask within ***2 secs***	Y	N	95%
1.4	***Tweezers*** or forceps were used to select straws	Y	N	81%
1.5	Straws were selected within ***45 secs*** from a goblet full of liquid nitrogen	Y	N	100%
Thawing straws and loading				
2.1	Straws were thawed in warm water between ***32-38°C*** (Sexed semen straws 35-37°C)	Y	N	95%
2.2	Mini-straws were thawed for ***at least 30 secs*** & kept there until ready for use (Maxis OR Sexed semen straws for at least 45 secs)	Y	N	96%
2.3	***Thermometer was checked*** against another thermometer and was working at start of season	Y	N	39%
2.4	There was a ***back up*** thermometer	Y	N	40%
2.5	The water temperature was ***monitored*** during the program	Y	N	81%
2.6	Water covers ***all but the top 1 cm*** of the straws	Y	N	75%
2.7	Straws were ***dried*** gently with a paper towel	Y	N	84%
2.8	Straws were ***not flicked*** (Circle 'No' if flicked)	Y	N	79%
2.9	Straws were handled ***only at their ends***	Y	N	85%
2.10	On cold days, the gun was rubbed briskly to ***warm*** it up before loading the straw	Y	N	66%
2.11	After the straw was loaded, the end was cut off at a right angle using ***sharp, clean scissors***	Y	N	91%
2.11	The straw was then ***covered with a sheath***	Y	N	100%
2.13	Straws were '***bubbled***' to check the plunger was working & semen is at end (ie straw not split)	Y	N	80%
2.14	Only enough straws that could be used in ***10 mins*** were thawed out	Y	N	98%
Hygiene				
3.1	The kit box is ***clean*** and organised	Y	N	66%
3.2	The loaded gun(s) were kept warm and ***free of contamination*** before use	Y	N	74%
3.3	The lips of the vulva were wiped clean using a clean ***paper towel***	Y	N	71%
3.4	The lips of the vulva were ***parted*** so a clean entry occurs	Y	N	86%
Technique				
4.1	The gun was directed upwards at ***45°*** to avoid entry into the bladder	Y	N	99%
4.2	The inseminator could pass a gun ***through*** the cervix efficiently	Y	N	83%
4.3	The end of the gun was placed ***just past the end*** of the cervix into the body of the uterus	Y	N	74%
4.4	All semen was deposited ***slowly***	Y	N	81%
Cow handling				
5.1	***Companion*** cows were left when there was only one cow to inseminate	Y	N	99%
5.2	Cows were handled with care to ***minimize stress***	Y	N	99%
5.3	The operator kept their ***patience*** before and during the insemination process	Y	N	100%

Overview of AI & Semen Handling procedures on 112 farms

112 farms

	Tank	Circle		Comments
6.1	The tank is stored ***off concrete***	Y	N	84% YES
6.2a	The tank is in a place with ***adequate lighting*** (to read lists, thermometers, see nitrogen levels)	Y	N	93%
6.2b	The tank is stored ***out of direct sunlight***	Y	N	96%
6.3	The tank is ***topped up*** on a regular basis	Y	N	96%**
6.4	The tank is checked ***twice weekly*** to ensure at least 12 cm of liquid nitrogen is at the bottom	Y	N	25%
6.5	There is a system to ***identify straws*** in tank, eg coloured markers, inventory list	Y	N	96%
6.6	If an automated thawing flask is used, it has been checked at the ***start of the season***	Y	N	If used, 59% YES
6.7	If an automated thawing flask is used, it has been checked at least ***monthly***	Y	N	If used, 42% YES
	Split straws			
7.1	A ***whole straw*** is always used for every cow	Y	N	94%
	Timing of AI			
8.1	Cows are inseminated within ***24 hours*** of being identified as being on heat	Y	N	100%
8.2	All inseminators are confident the cows they are inseminating are truly ***on heat***	Y	N	96%
	Facilities			
9.1	There is adequate ***safety*** for the cow and operator	Y	N	96%
9.2	The cows are ***adequately restrained***	Y	N	97%
9.3	The facilities are ***under cover***	Y	N	80%
	Records			
10.1	Cow are ***readily identified*** by all operators (eg freeze-brands clipped, readers on hand for EID)	Y	N	99%
10.2	A ***record*** of all inseminations is kept, at a minimum the Date Cow ID, Bull used, Operator	Y	N	99%

**This question not answered on 58% of farms

A new service for AI DIY clients

Research question: To what extent will the on-farm appraisal service and resources be used by businesses after this pilot?

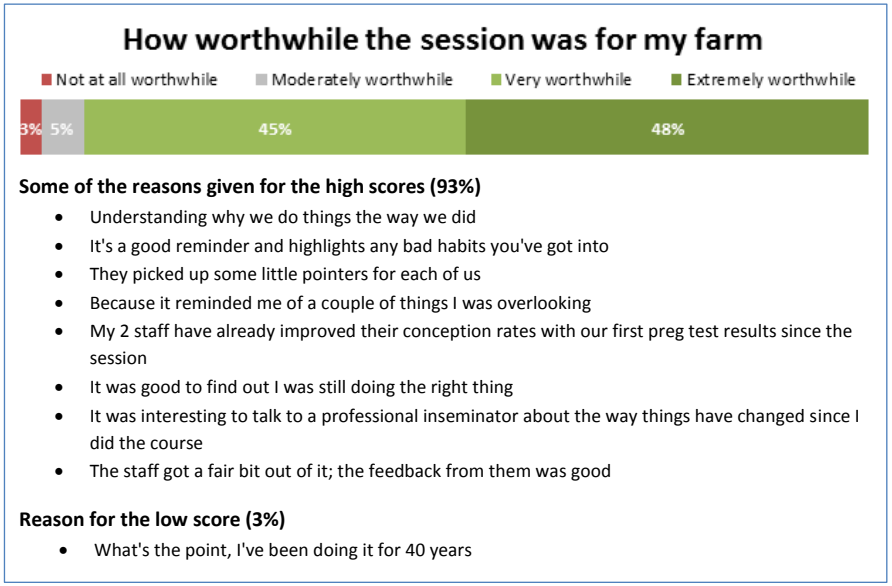
The underlying premise of the pilot was that DIY farmers tend to operate independently and would benefit from a closer connect with the training, advice and expertise available in their local artificial breeding centre.

The on-farm appraisals were well received by participating farmers who appreciated the sessions with the AI technicians: 93% believed the sessions were very worthwhile, 95% were keen to repeat the experience and 98% said they would recommend it to others.

Farmers were able to ask the questions they had "always wanted to ask" and explore issues of interest. Furthermore 78% of farmers changed the way they did something as a result of the interaction.

When asked for suggestions on how to change the interaction to help farmers get more out of it, the general response was "no, it was done really well, I liked the one-on-one, it was relaxed". The following comment seemed to reflect the mood:

> *"No it's more about the attitude that we approach it with. If there is 2 or 3 people on the place, do it together and be willing to learn. Don't treat it as an exam. It was handy for all of us; some of us were very experienced and others only had a couple of years."*



Some of the reasons given for the high scores (93%)

- Understanding why we do things the way we did
- It's a good reminder and highlights any bad habits you've got into
- They picked up some little pointers for each of us
- Because it reminded me of a couple of things I was overlooking
- My 2 staff have already improved their conception rates with our first preg test results since the session
- It was good to find out I was still doing the right thing
- It was interesting to talk to a professional inseminator about the way things have changed since I did the course
- The staff got a fair bit out of it; the feedback from them was good

Reason for the low score (3%)

- What's the point, I've been doing it for 40 years

95% of farmers would have another session on their farms

Would consider having another refresher session on my farm in the future	95%
Would have another session in	
12-18 months	25%
2 years	31%
3-4 years	17%
5 years	25%
10 years	3%

98% of farmers would recommend this AI refresher to other farmers

78% of farmers had changed the way they did something	
Have made changes as a result of the interaction	78%
Importance of having something written to refer back to	
Extremely important	8%
Very important	21%
A little important	46%
Not very important	21%
Not at all	5%

The benefits from the farmers' point of view

- Getting more cows in calf
- 1% extra in conception is a fair few more cows on the ground
- It was a good chance to update what we were doing
- Our less experienced guy has got a lot more confident from it
- More cows in calf!
- Updates you with any advances in practices
- Picking up new ideas and hearing what other people are doing
- Semen costs a lot of money so you don't have to get many more cows in calf to cover the time involved
- Having an independent check that you are doing things correctly
- Pick up the little things that we get a bit slack on over the years
- Because of the things that have changed since I did my training
- Peace of mind that we are doing it right
- Better conception rates - that's money in the bank
- Reminding what we first learned and not cutting corners
- Get more cows in calf! The changes weren't any more time consuming; so it's something for nothing
- Getting more cows in calf and not wasting the cost of semen!
- Anything that helps conception rates is worthwhile
- AI technicians delivering the service more confident

Types of changes made by farmers

- We now put the cows in the crush in the AI race - it's easier to do the insemination
- Not going quite far enough through the cervix
- Use tweezers rather than grabbing with my fingers
- I was overfilling the water flask so now I fill it less
- My AI kit was a bit of a mess so I've tidied it up
- I wasn't flicking the straw before putting it into the water to defrost
- When I pull the straw out of the tank I was taking it too high, now I don't
- I wasn't warming up the gun on a cold morning
- I was getting the straws out too early and leaving it too long before I did the insemination so I've changed my routine so it's not sitting there as long
- We don't try and load up for more than 7 guns at a time any more
- It was good for our employees to be in the refresher too
- We were taught to carry the gun in your mouth whereas now they suggest putting it down the front of your shirt or in your pocket
- We'd fallen out of the habit of having paper towels available so now we've restocked them
- I was a bit lax on the cleanliness of my hands
- Thawing technique - I did it in cold water and now we do it at the right temperature
- Our semen tank was too high and we were possibly pulling the canisters out too far
- I need to buy new thermometer
- How far I put it in the cows - I'd been pushing it too far in
- I bought an electric thawing jar so the temperature is always right
- I changed the number of straws that I get out at once
- Mainly record keeping - we've changed the way we do that

The value-add to AB businesses offering the service

AI DIY clients can be the hardest for AB businesses to keep: it's very easy to buy parcels of semen from different retailers without forming any sort of relationship between the business and the client.

Common themes when asked about the value to their business for offering the service were a new type of connection with their DIY clients and, for some, the sale of additional products.

> *[the AB business] "see this as fantastic PR for their business…. It has… created more contact with their DIY farmers who they usually only see at the beginning of joining to organise semen and merchandise and a phone call at the end to collect tank."*
>
> *– email from a tech participating in the pilot*

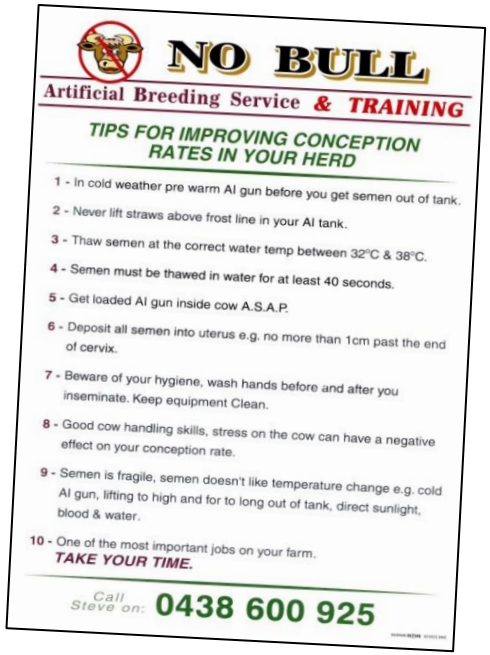
An unexpected benefit of being involved mentioned by some of the AI technicians doing the appraisals was the opportunity to share their experience with others and become confident that they were "across the latest information".

All of the AI technicians directly involved in the delivery of the appraisals were keen to be involved in an ongoing service and planned to use it in the future. There were many suggestions on way to improve the process (see the table on page 18).

The benefits for AB centres

- Increase market reach (business opportunity)
- A way to connect with clients and build the relationship
- Less likely to have competitors walk in
- The sale of additional products
  - More heat detection aids (including use of aids in 2nd round)
  - Thawing flasks, tweezers & thermometers
- The potential for increasing the use professional services in synchrony programs
- Promoting the profile of the business
- AI technicians delivering the service more confident

A client Fact Sheet written by an AB business



NO BULL

Artificial Breeding Service & TRAINING

TIPS FOR IMPROVING CONCEPTION RATES IN YOUR HERD

1 - In cold weather pre warm AI gun before you get semen out of tank.

2 - Never lift straws above frost line in your AI tank.

3 - Thaw semen at the correct water temp between 32°C & 38°C.

4 - Semen must be thawed in water for at least 40 seconds.

5 - Get loaded AI gun inside cow A.S.A.P.

6 - Deposit all semen into uterus e.g. no more than 1cm past the end of cervix.

7 - Beware of your hygiene, wash hands before and after you inseminate. Keep equipment Clean.

8 - Good cow handling skills, stress on the cow can have a negative effect on your conception rate.

9 - Semen is fragile, semen doesn't like temperature change e.g. cold AI gun, lifting to high and for to long out of tank, direct sunlight, blood & water.

10 - One of the most important jobs on your farm. TAKE YOUR TIME.

Call Steve on: 0438 600 925

Feedback on the appraisal process from the AI technicians and business managers

Feedback from the technicians	Rating (with number giving this response)	Some of the comments made
Level of technician comfort for the First couple of appraisals Last appraisal	 OK (2), Comfortable (5), Very comfortable (1) Very comfortable (8)	How the last appraisal was different: More confidence; Better flow; Quicker to do; Better at communicating benefits; Became a business tool
Level of interest shown by farmers in the appraisal service, including those that didn't do it	Not a lot (1), OK (4), Some interest (4), Very interested (1)	Farmer concerns included: Timing (too busy); Staffing; Not sure they were going to benefit; Not comfortable with being assessed
Range of reproductive issues discussed during the farm visits	One or two (1), A few (5), A lot of issues (2)	Topics raised included: Heat detection (cost of missed heats); Hygiene; Semen handling; Record keeping & software; Body condition; Fodder; The transition period; Synchrony; Timing of AI; Sexed semen; Staff; ABVs
Value of having written feedback to give clients	Not a lot (2), Some (2), A lot (3), Very valuable (3)	Immediate verbal feedback is as important as written, Better reinforcement of key messages; Good for follow-up; Writing report back at the office gives time for reflection and detail; Not everyone wanted a report; Essential and well-received
Value of having a record of what was discussed	Not a lot (1), Some (2), A lot (3), Very valuable (3)	Have a record of the previous visit if go back again; Setting up a third party; Didn't keep a copy; Opportunity for further contact
The business has a better client relationship with the farmers that were visited	No different (5), A little better (2), A lot better (2)	Interest in extras not just selling semen; Farmers were very appreciative- goodwill factor; Highlighted the business/tech's expertise and keeping them up to date with latest information; Had a close relationship with some farms already
Want to be involved in this as an ongoing service	Maybe (2)[a], Keen (4), Very keen (4)	Maintain and grow customer relationship; Very well received by farmers; Wouldn't charge for it; Loved it; Less data questions of course; Don't have a lot of DIY clients in the business
The most important feature of the appraisal process for farmers from your point of view	n/a	Providing positive feedback / Reassurance their basics were right; Providing updated information on what's changed & why things are done differently; About the 1% improvements- some may not have done a refresher for many years; The insemination process
From your point of view, the most important feature of the appraisal process for your business	n/a	Closer relationship to client / Opportunity to connect with DIYs more and be on farm; Value adding to services provided; Product sales; Good to see them perform in their own environment; Ability to offer a new, structured refresher course; Improve conception rates
Suggestions to improve the appraisal process for techs providing the service	n/a	Timing important; Training for the techs doing the refresher very important; Checklist very good; A more compact set of survey questions- eg 5 core / Keep questions on heat detection, staff levels, Mating Start Date, Cow no's, calving pattern goals, NVOs as opens up discussion; Supplementary information on synchrony, sexed semen, non-visible oestrus; Need a project coordinator for it to work; iPad with semen thawing DVD; Have something to leave on-farm (like the AI card)
The business plans to use this service in the future	Yes (9)	Will offer to DIYs (not sure if it will be billed out); Marketing and promotion - phone calls, face to face, email / Send out flyer- 1-2 weeks before joining; Yes depending on a subsidy (even partial); Have extra resources handy

(a) This rating given by 2 business managers who did not see an appraisal in person

What's needed for the approach to be sustainable

Following the experience from the pilot, the project team now believes the service is only likely to be sustainable within AB businesses if both a senior business manager and professional technician are involved from the start (these are often the same person in small businesses). Both roles are needed to develop systems that link the technical delivery of farm appraisals with ways of identifying opportunities and following them up.

The next step for individual businesses is to consider ways of developing an appropriate model to offer the service as a commercial proposition. For example: offering farm appraisals to all clients for $195-300 or providing it free of charge for clients who buy a minimum of 500 straws or $5000 worth of semen; or offering farm appraisals to premium clients every couple of years at the start of joining.

Businesses are more likely to engage with this service if there are other areas of management up for discussion and are included in the pack.

Ideas for refining the materials & resources

The on-farm appraisal process and materials were based on the InCalf 'AI Do It Right' module released in 2011. The core group recommends several modifications to the service materials and resources before offering it more widely. These include:

- Putting together 2-3 farmer case studies to promote awareness of the appraisals (eg for use in the Australian Dairyfarmer).
- Locating the AI DIY Service Pack in a central repository (eg dual brand and sit with NHIA).
- Modifying the pack. Make it more stand-alone by adding 2 pages at the front end explaining the why and how of the process for AB centres.
  - Replace the 'Farm Profile' questions (used in this research to increase industry understanding about reproduction on DIY farms) with questions that technicians could use to open conversations in areas likely to influence AI outcomes (such as heat detection, the timing of AI relative to standing heat, synchrony programs etc).
- Increase access to materials and resources that help explain the reasons for doing things a particular way. For example:
  - The 90 second video clip produced by Cogent for Alta Genetics shows the effect of water contamination on semen viability and the effects of cold guns or cold water on semen motility. This could be viewed on an iPad or laptop at the time of the visit to help demonstrate the principles.
  - Relevant supporting resources around Heat detection and Synchrony, the two topics commonly raised by farmers (such as the new Dairy Australia Fact Sheet 'Guide to synchrony programs for dairy herds', and the new NHIA You-Tube video on 'Heat detection for Australian farmers').
  - Fact Sheets for the common issues such as keeping semen and equipment at the right temperature.

What it would take to increase use of the appraisal service

About 58% (3,900 of Australia's 6,700 dairy farms) do their own AI. Using the businesses that sell semen to farmers to provide customised advice promises to be an efficient way of engaging with many DIY AI farmers, however it will not happen of its own accord. Individuals in AB centres were able to convert the pilot concept into meaningful client interactions with some leadership and coordination provided by industry. The process could be repeated and extended to the next round of businesses with an interest in this area (there are about 75 in total across Australia from small one-person services through to the larger centres). However for the process to be successful it needs to be driven by both NHIA and Dairy Australia.

Based on the experiences from the pilot, the research group recommends Dairy Australia co-sponsors a similar initiative with NHIA to take this service concept to an expanded circle of AB businesses. For the best chance of success we believe this would involve:

- Having a modified pack, including extra resources, which is simpler to use and opens up areas for discussion with farmers (based on the feedback from AI technician summarised in the table on page 18).
- Identifying AB businesses that have the technical capacity to conduct appraisals and invite them to participate.
- Having the project leader initially contact the business manager of the AB centre to explain the concept. (Note multiple connects are often needed to identify the appropriate person to talk to within larger businesses, and it can take a few months to get organisations to come on board depending on the nature of the core business - and for us the degree the structural change that the organisations were subject to.)
- Holding a workshop (before the mating season starts in split and seasonal calving herds) and encouraging both the manager and technician to attend.
- Organising for every manager and technician to observe an on-farm appraisal (or perhaps make a video of the process) so that they become familiar with style of the interaction and start to think about the opportunities it offers.
- Having NHIA &/or Dairy Australia lead the effort to support those involved in the delivery and follow-up what happened 3 to 6 months later.

Appendix: AI DIY Service Pack

AI DIY Service Pack

Farm details

Farm owner/manager .....

Address .....

Phone .....

Herd ID .....

Mating start date for herd .....

Number of people that do AI in this herd .....

Interactions

Date	Planned action

AI & Semen Handling project, 9-Apr-2013 *Page 1*

(A) The farm visit

Setting-up the farm visit

Date of visit .....

Preferred time of day to run a session .....

Time of visit .....

Number of AI operators that will attend session .....

- ❑ Request that ***all people who do AI*** on farm come along
- ❑ Allow about 15 minutes for each operator and 30 minutes for discussion
- ❑ Ensure there is a ***tank with some semen*** (preferably the owners, otherwise need to organise)
- ❑ Request about ***5 cows*** per operator to be available (EITHER cows on heat OR empty cows)

At the visit

- ❑ Take
  - This Service Pack, extra DIY Inseminator Checklists and pens
  - Thermometer
  - Practice straws (diluent blanks)
  - Camera
- ❑ Fill in ***(B) Farm Profile Sheet***. Collect background information about joining in this herd to assist with the research.
- ❑ Fill in a ***(C) DIY Inseminator Checklist*** for each technician, even those not at the session. Ask each operator to perform 5 inseminations. Watch the whole procedure without commenting until you check their placement of the gun (then show the correct placement if necessary). Give individual operators feedback on the protocols and practices they use.
- ❑ Fill in ***(D) Farm Procedures Checklist***. Review AI & Semen handling procedures and protocols used on this farm. Discuss important gaps and why it is good to get them right. Discuss ways to correct that is a good fit with their farm system. Summarise on 'things to do differently' (page 8). Ask permission for the project to contact the farm manager.

After the visit

- ❑ Provide farm manager with written feedback (eg 'things to do differently' from page 8)
- ❑ Send the ***completed pack*** plus any ***letters to farmers*** to your regional facilitator

  Western Victoria (Megan Dodd) mdodd@activ8.net.au
  Gippsland (Stewart McRae) gallrae@mistro.ag , fax (03) 5149-2252
  Non-Vic (Barry Zimmermann) bzimmermann@bigpond.com; or fax to HPG (03) 9629-1051

AI & Semen Handling project, 9-Apr-2013 *Page 2*

Appendix: AI DIY Service Pack

Dairy Australia

(B) Farm Profile Sheet

About this herd

Name of person giving this background for the herd:

Herd ID (as used on all sheets):

Date:

How many cows in the milking herd?
How many first lactation 2yo's are in the herd?
How many yearling heifers are there?

How many kilograms of solids on average per cow are expected to be produced this year?

Which of the following best describes your **calving system?**

- ❑ Majority of the herd in one batch- seasonal calving
- ❑ Calve in more than one batch- Split calving: How many batches?...
- ❑ All year round calving
- ❑ Other, What?...

Does the herd participate in **Milk Recording:**

- ❑ No
- ❑ Yes, Which centre?...

Mating

Do you use **synchrony** programs?

- ❑ No
- ❑ Yes, both cows & heifers
- ❑ Yes, cows only
- ❑ Yes, heifers only

For the **milking herd:**

When does **AI start?** (date)	
How many weeks do you do AI?	
When do the **bulls go in?** (date)	
How many weeks are the bulls in?	

For the **heifers:**

When does **AI start?** (date)	
How many weeks do you do AI?	
When do the **bulls go in?** (date)	
How many weeks are the bulls in?	

Is the herd **preg tested?**

- ❑ No
- ❑ Yes, If yes:

Is this **before 17 weeks?**	❑ No	❑ Yes
Are the results **on computer?**	❑ No	❑ Yes

Heat detection

How many people on the farm do heat detection?

How is **heat detection done?**

Paddock observation	❑ No	❑ Yes
Scratchies	❑ No	❑ Yes
Kamars / other patches	❑ No	❑ Yes
Tail paint	❑ No	❑ Yes
Other	❑ No	❑ Yes

Which of the above do you **rely on** the most?

When **picking up returns,** is it the:

- ❑ Same as above
- ❑ Different, How?...

Dairy Australia

(B) Farm Profile Sheet

AI

How many people perform AI in the herd?

Where is the AI done? (describe)

Do you ever use **professional AI services?**

- ❑ Never
- ❑ Sometimes. What proportion of herd last year? (%)...

Is **sexed semen** ever used in this herd?

- ❑ No
- ❑ Yes, both cows & heifers
- ❑ Yes, cows only
- ❑ Yes, heifers only

Which records are **regularly kept** for EVERY insemination?

Date of AI	❑ No	❑ Yes
Cow ID	❑ No	❑ Yes
Bull used	❑ No	❑ Yes
Operator	❑ No	❑ Yes
Batch number	❑ No	❑ Yes
If sexed semen used	❑ No	❑ Yes

Are these **available electronically?**

- ❑ No
- ❑ Yes, Which **software?**...

Non-cycling cows

Do you identify non- cycling cows **before mating** starts?

- ❑ No
- ❑ Yes

If yes, how are they treated?

Do you identify non- cycling cows **after mating** starts?

- ❑ No
- ❑ Yes

If yes, how are they treated?

Overall reproduction

How **satisfied** are you with the following in **YOUR** herd? *On a scale of 1 (not at all) to 5 (very) satisfied*

Time put into heat detection

Effectiveness of heat detection aids

My herd **doesn't** have an issue with non-cycling cows

Ability of workers on my farm to detect cows on heat

The conception rate to AI

My AI facilities

Skills of my inseminators at semen handling/thawing

Their insemination skills

The cow handling skills of my inseminators

The fertility of semen I use

Other (please specify)

1	2	3	4	5
Not at all		OK		Very satisfied

END

Appendix: AI DIY Service Pack

(C) DIY Inseminator Checklist

Please complete this page for each DIY operator in the herd- even those not at the session

Herd ID ..... Date of visit .....

Name of operator .....

What is their position on farm?

- ☐ Owner/manager
- ☐ Sharefarmer
- ☐ Family member
- ☐ Employee
- ☐ Other

How many inseminations did they do last year?

- ☐ <50
- ☐ 51-100
- ☐ 101-150
- ☐ 151-500
- ☐ >500

What proportion of the milking herd would they usually AI? (%) .....

What proportion of the heifers would they usually AI? (%) .....

Where did they do their initial AI training? .....

When was it done? .....

When did they last do a refresher? .....

Where was this? .....

Did they attend the session today?

- ☐ No
- ☐ Yes, Complete the next page

(C) DIY Inseminator Checklist

Name of operator ..... HerdID .....

Ask each person to do what they would normally do

	Handling straws	Circle		Comments
1.1	*Inventory* list was consulted before lifting canister (specs used if needed)	Y	N	
1.2	Canister was lifted to the *frost line* of tank when picking straws	Y	N	
1.3	Straws were transferred to the thawing flask within *2 secs*	Y	N	
1.4	*Tweezers* or forceps were used to select straws	Y	N	
1.5	Straws were selected within *45 secs* from a goblet full of liquid nitrogen	Y	N	
	Thawing straws and loading			
2.1	Straws were thawed in warm water between *32-38°C* (Sexed semen straws 35-37°C)	Y	N	
2.2	Mini-straws were thawed for *at least 30 secs* & kept there until ready for use (Maxis OR Sexed semen straws for at least 45 secs)	Y	N	
2.3	*Thermometer was checked* against another thermometer and was working at start of season	Y	N	
2.4	There was a *back up* thermometer	Y	N	
2.5	The water temperature was *monitored* during the program	Y	N	
2.6	Water covers *all but the top 1 cm* of the straws	Y	N	
2.7	Straws were *dried* gently with a paper towel	Y	N	
2.8	Straws were *not flicked* (Circle 'No' if flicked)	Y	N	
2.9	Straws were handled *only at their ends*	Y	N	
2.10	On cold days, the gun was rubbed briskly to *warm* it up before loading the straw	Y	N	
2.11	After the straw was loaded, the end was cut off at a right angle using *sharp, clean scissors*	Y	N	
2.11	The straw was then *covered with a sheath*	Y	N	
2.13	Straws were *'bubbled'* to check the plunger was working & semen is at end (ie straw not split)	Y	N	
2.14	Only enough straws that could be used in *10 mins* were thawed out	Y	N	
	Hygiene			
3.1	The kit box is *clean* and organised	Y	N	
3.2	The loaded gun(s) were kept warm and *free of contamination* before use	Y	N	
3.3	The lips of the vulva were wiped clean using a clean *paper towel*	Y	N	
3.4	The lips of the vulva were *parted* so a clean entry occurs	Y	N	
	Technique			
4.1	The gun was directed upwards *at 45°* to avoid entry into the bladder	Y	N	
4.2	The inseminator could pass a gun *through* the cervix efficiently	Y	N	
4.3	The end of the gun was placed *just past the end* of the cervix into the body of the uterus	Y	N	
4.4	All semen was deposited *slowly*	Y	N	
	Cow handling			
5.1	*Companion* cows were left when there was only one cow to inseminate	Y	N	
5.2	Cows were handled with care to *minimize stress*	Y	N	
5.3	The operator kept their *patience* before and during the insemination process	Y	N	

Comments:

Appendix: AI DIY Service Pack

(D) Farm Procedures Checklist

Herd ID ..... Date .....

Person doing this session .....

People on-farm in this discussion (name & role) .....

.....

.....

	Tank	Circle		Comments
6.1	The tank is stored *off concrete*	Y	N	
6.2a	The tank is in a place with *adequate lighting* (to read lists, thermometers, see nitrogen levels)	Y	N	
6.2b	The tank is stored *out of direct sunlight*	Y	N	
6.3	The tank is *topped up* on a regular basis	Y	N	
6.4	The tank is checked *twice weekly* to ensure at least 12 cm of liquid nitrogen is at the bottom	Y	N	
6.5	There is a system to *identify straws* in tank, eg coloured markers, inventory list	Y	N	
6.6	If an automated thawing flask is used, it has been checked at the *start of the season*	Y	N	Not used
6.7	If an automated thawing flask is used, it has been checked at least *monthly*	Y	N	Not used
	Split straws			
7.1	A *whole straw* is always used for every cow	Y	N	
	Timing of AI			
8.1	Cows are inseminated within *24 hours* of being identified as being on heat	Y	N	
8.2	All inseminators are confident the cows they are inseminating are truly *on heat*	Y	N	
	Facilities			
9.1	There is adequate *safety* for the cow and operator	Y	N	
9.2	The cows are *adequately restrained*	Y	N	
9.3	The facilities are *under cover*	Y	N	
	Records			
10.1	Cow are *readily identified* by all operators (eg freeze-brands clipped, readers on hand for EID)	Y	N	
10.2	A *record* of all inseminations is kept, at a minimum the Date Cow ID, Bull used, Operator	Y	N	

This appraisal was based on:

- ❑ Cows on heat
- ❑ Empty cows
- ❑ Own tank
- ❑ If not own tank, please describe...

(D) Farm Procedures Checklist

Do differently

Herd ID ..... Date .....

What	Who	When

I give permission for information about this herd to be included in Dairy Australia's research project on 'AI and Semen handling' (where individual confidentiality is maintained at all times and results are released in an aggregated form).

❑ Yes ❑No

I am happy to provide feedback about this process to InCalf (eg a couple of weeks after the visit ± later in the project early to mid-2013)

❑ Yes ❑No

Signed .....

Date .....