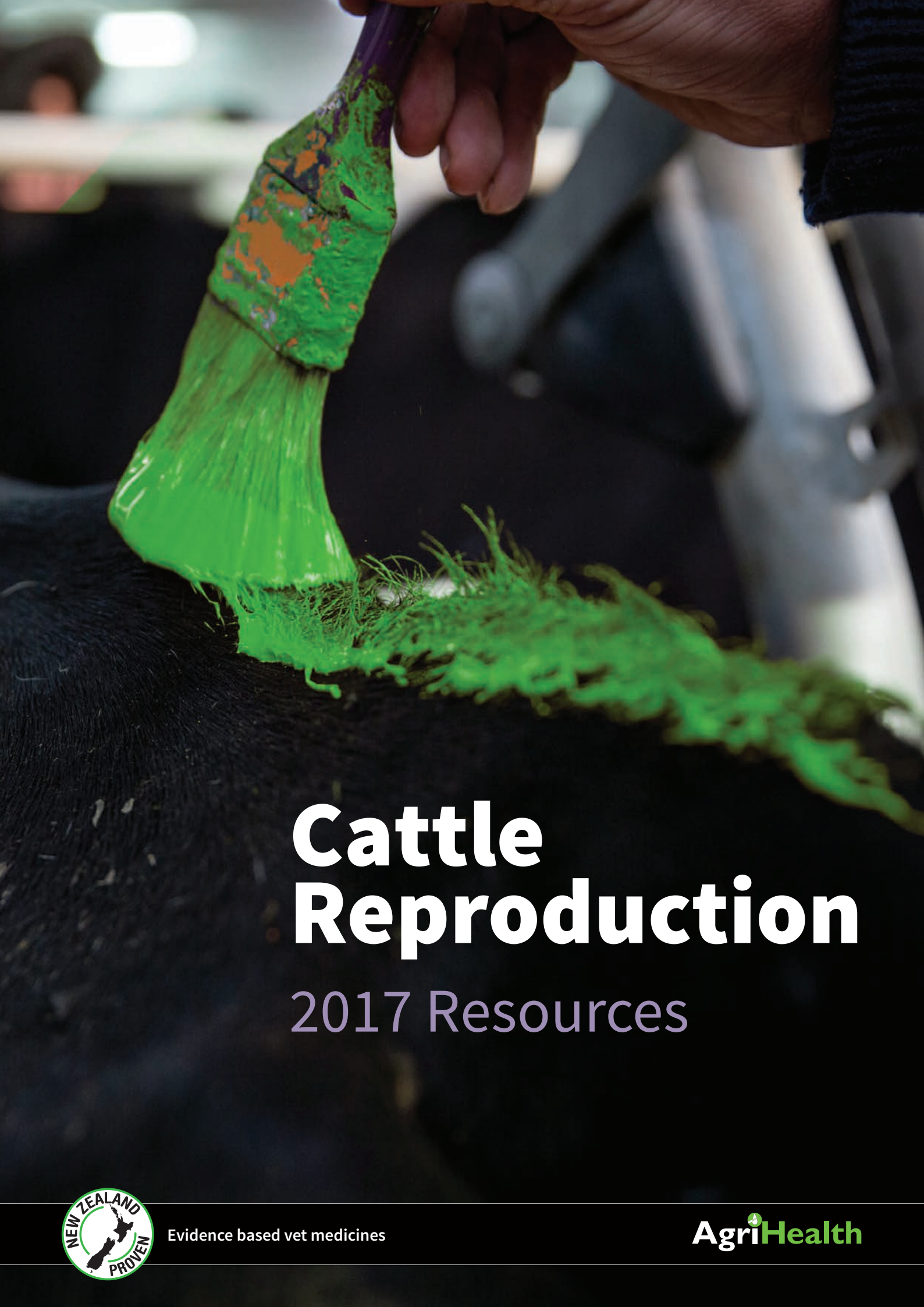


Cattle Reproduction

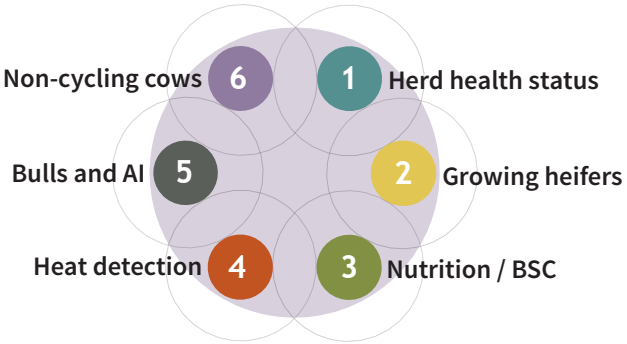
2017 Resources

Evidence based vet medicines

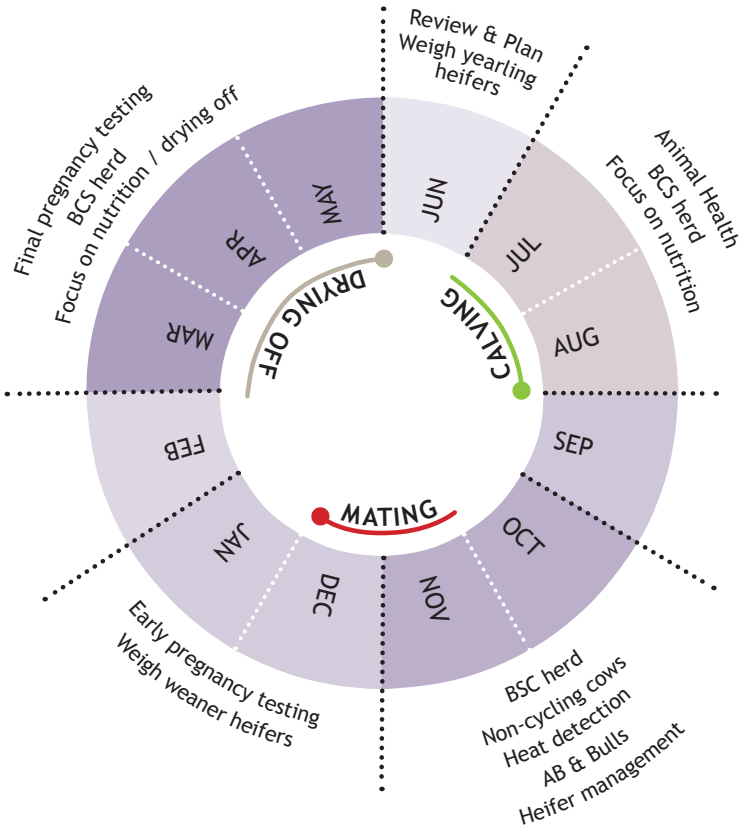
AgriHealth

Ready to Mate

Optimise reproductive performance by taking a holistic view and improving management of:



Annual Cycle - Seasonal Dairy Herds



Benchmarking and monitoring performance change over time is critical to the success of the Ready to Mate program

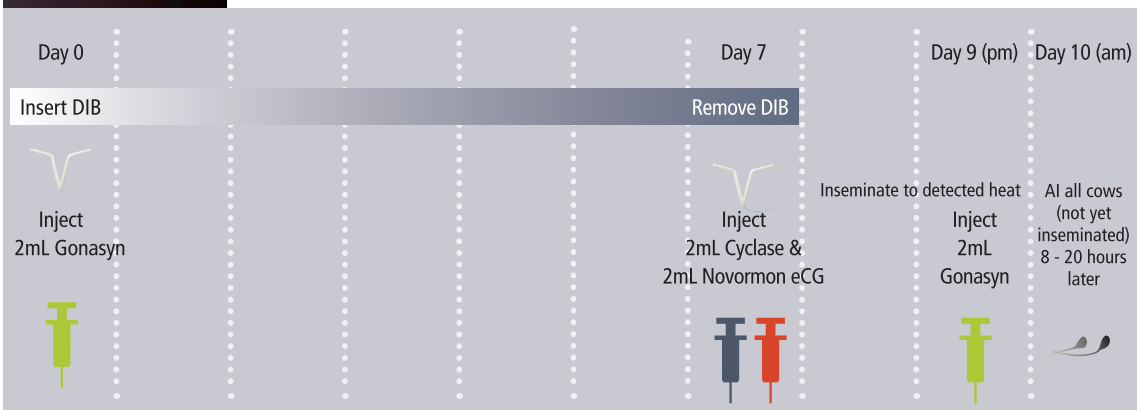
Every 1% improvement in herd 6 week in-calf rate is worth $4 per cow in the herd

Benefits from improving farm reproductive performance

- More days in milk leading to improved farm profitability
- Calving pattern is more compact (fewer late calvers)
- Fewer cows are culled as empty
- More cows pregnant to Artificial Insemination (AI) so more AB calves
- More heifer replacements born early
- Fewer days feeding dry cows

Increase in-calf rates by treating non-cycling cows prior to the planned start of mating

DIB-Synch Plus



DIB Synch Plus Program for an additional 10 days in milk (compared with no treatment)

Personalised farmer ROI Calculator

FINANCIAL IMPLICATIONS OF NON CYCLING COWS AT PSM

General Information		
Herd size	500	
Average milk production (early season) Kg MS	1.6	
	PSM -9 Days	PSM +21 Days
Typical NVO cows %	20%	8%
Expected NVO cows	100	40

I. Effect on Milk Production	PSM -9 Days	PSM +21 Days
Extra milk production (Kg MS)	3040	192
Value of extra milk production	$19,760	$1,248

II. Effect on 6-week In-Calf Rates	PSM -9 Days	PSM +21 Days
Additional AB heifer calves	13	5
Value of additional AB heifer calves	$2,500	$920

III. Effect on Following Season Reproductive Performance	PSM -9 Days	PSM +21 Days
Fewer non-cycling cows next season	12	1
Reduced treatment cost in following season	$540	$36

IV. Cost of Treating NVO cows	PSM -9 Days	PSM +21 Days
DIB-Synch Plus eCG Treatment	$4,500	$1,800
Cost of addtional feed	$2,280	$144
Total cost of treatment	$6,780	$1,944

V. Financial Summary	PSM -9 Days	PSM +21 Days
Total cost of treating NVO cows	$6,780	$1,944
Total gains from treating NVO cows	$22,800	$2,204
Gain - Cost (per herd)	**$16,020**	**$260**
ROI	**236%**	**13%**

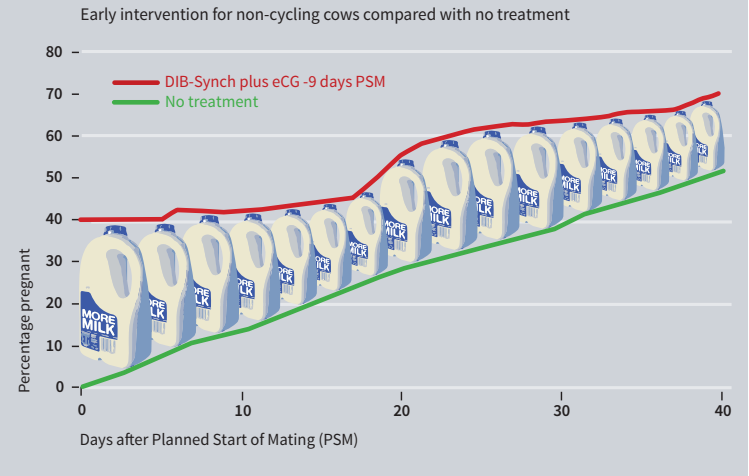
Treat non-cycling cows with the modern program prior to planned start of mating to maximise days in milk and farm income

Early treatment provides greater returns:

Treat prior to PSM *27kg MS / cow*
Treat 3 weeks after PSM *3.5kg MS / cow*

Treating non cycling cows prior to PSM produces 8 x more milk, compared with treating cows after 'first round' of AB

Extra milk production following non-cycling treatment



Synchrony Programs

The advantages of synchrony programs

- More days in milk providing more farm income
- Compact calving over a short period
- More time to begin cycling prior to next mating
- Faster genetic gain if heifers synchronised
- Additional AB heifer calves

Common synchrony programs

DIB-CoSynch

The DIB-CoSynch program allows the use of set time AI. All animals are inseminated the same day so only one AB technician visit required. NZ dairy heifers synchronised with a CoSynch program have significantly higher pregnancy rates than heifers given a double PG program.

(McDougall, Rhodes, and Compton 2013)

Why Wait

Week - 3	Week - 2	Week - 1	PSM	Week 1 of mating	Day 7 mating	Week 2 of mating
Record all cows on heat	Record all cows on heat	Record all cows on heat	Inject all cows on heat week -2	Cows on heat weeks -3 and weeks -2 submitted for AI	Inject all cows on heat week -1	Cows on heat week -1 submitted for AI

The Why Wait program requires premating heat detection and recording of the week prior to mating that the cow showed signs of heat. This program advances pregnancy one week for two-thirds of the herd and ensures two thirds of the cycling cows in the herd are submitted in week one and all cycling cows have been submitted for AI by the end of week two.

Gonasyn and Cyclase

Gonasyn contains gonadorelin acetate (50 µg/mL)

Gonadorelin is a synthetic analogue of GnRH (gonadotropin releasing hormone)

GnRH stimulates the release of FSH (follicle stimulating hormone) and LH (luteinising hormone) from the pituitary gland

Gonasyn complements use of the DIB-V and DIB-h progesterone inserts, Cyclase and Novormon eCG in DIB-Synch Plus programs

Gonasyn has been proven in the DIB-Synch and DIB-Synch Plus programs under New Zealand commercial farming conditions

Cyclase contains cloprostenol (as sodium) 250 µg/mL

Cyclase is a synthetic analogue of prostaglandin F2∂

Cyclase is indicated for the luteolysis of functional corpora lutea (CL) in cows, pigs and horses

The dose of Cyclase in cattle is single or repeat doses of 2mL (500µg cloprostenol)

Cyclase complements use of the DIB-V and DIB-h progesterone inserts, Gonasyn and Novormon eCG in DIB-Synch Plus programs

Cyclase has been proven in the DIB-Synch and DIB-Synch Plus programs under New Zealand commercial farming conditions

Repro' Research

Leading veterinary understanding of NZ cattle health and productivity

Bates, A. Resynchrony study with early diagnosis of pregnancy, AgriHealth Technical Seminar 2015.

Bryan, M. The concurrent administration of eCG with prostaglandin in a dairy cow synchrony program and its effect on reproductive outcomes, WBC 2014.

Clews, M. A comparison of reproductive outcomes of anoestrous cows treated with a P4 device in either a traditional New Zealand 10 day or an alternative 9 day program. AgriHealth Technical Seminar 2015.

Hawkins D. Efficacy of inclusion of an additional 400IU eCG 14 days after artificial insemination into a progesterone + GPG + eCG treatment protocol for anoestrus dairy cows. Proceedings DCV Annual Conference 2013, 145-151.

Hawkins, D., Young, L., Lawrence, L. Assessment of field efficacy of intra-uterine cephapirin for the treatment of metricheck positive cows in spring calving dairy herds. Data on file 2015.

Lawrence, L. An improved program for the treatment of anoestrous dairy cows in New Zealand, WBC 2014.

McDougall, S. Prevalence of vaginitis and degree of purulent material on two intravaginal progesterone releasing devices, 2010.

McDougall, S. Effect of addition of eCG on ovarian follicle size and timing of ovulation in a treatment program for anoestrous dairy cows comprising intravaginal progesterone, GnRH and prostaglandin F2 alpha, WBC 2014.

McDougall, S., Kenyon, A. Do NSAID's improve reproductive performance of cows with endometritis? AgriHealth Technical Seminar 2016.

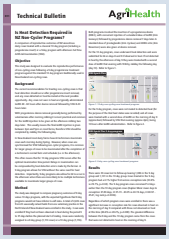
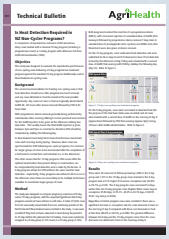
Shephard, R. Efficacy of inclusion of equine chorionic gonadotrophin into a treatment protocol for anoestrous dairy cows. NZVJ, 2013, 61:6, 330 – 336.

Young, L. Understanding progesterone requirements when treating New Zealand anoestrous dairy cows with programs with a seven day length of progesterone device insertion, WBC 2014.

Young, L. Using quantitative observational research to assess cow behaviour during treatment with intravaginal progesterone inserts on New Zealand dairy farms, WBC 2014.

Young, L., Lawrence, L. Cyclase as diluent for Novormon eCG, AgriHealth Technical Seminar 2015.

Young, L. Can we improve eCG effect with a higher dose? AgriHealth Technical Seminar 2015.







DIB progesterone inserts

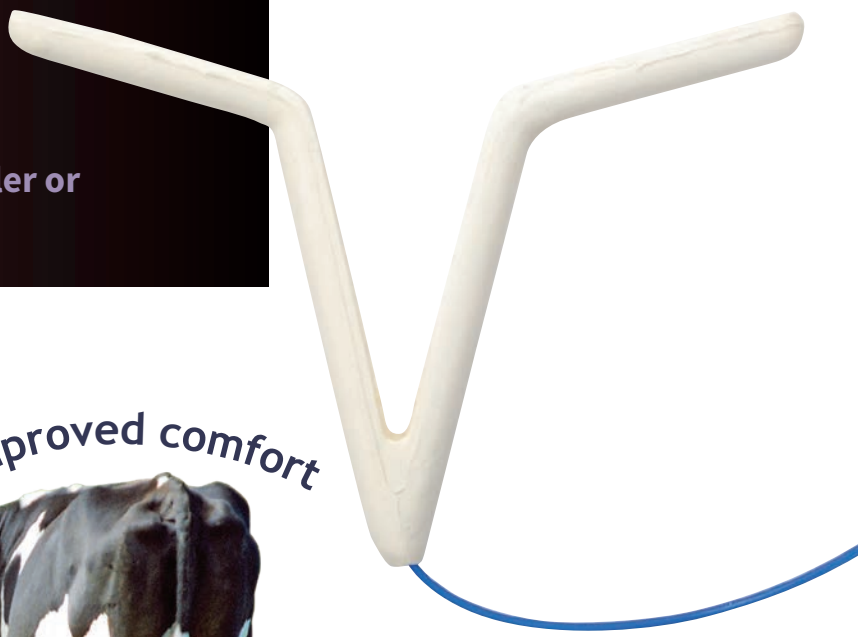
DIB-V and DIB-h have both been proven under NZ commercial farming conditions.
They contain optimised dosage of progesterone for modern seven day breeding programs.

DIB-V is a 1 gram progesterone intravaginal insert and DIB-h is a 0.5g progesterone intravaginal insert. Both products are registered for controlled breeding in cows and heifers.

The progesterone in the inserts is not fully liberated following standard 7 day use, leaving significant levels of progesterone in used inserts, especially those with a higher initial progesterone content. Using DIBs means less progesterone being discarded into landfills!

Advantages of the DIB progesterone insert

- **Improved cow comfort (based on 3,180 assessments of cow behaviours during milking times)**
- **More flexible shape, with softer tips**
- **Less pus on insert when removed from cow**
- **Excellent retention rates**
- **Suitable for use in non-cycler or heifer programs**



NEW ZEALAND PROVEN

Novormon eCG is superior

Novormon eCG is equine Chorionic Gonadotrophin (eCG or PMSG). The product is freeze dried with diluent for reconstitution. The dose of Novormon eCG for oestrus synchronisation in cattle is 2mL (400 IU eCG).

Novormon eCG is highly purified and has an optimal FSH / LH ratio. Dual action on FSH and LH stimulates follicular growth and ovulation. Novormon eCG increases ovulation rates and stimulates oestrus in anoestrous animals.

Novormon eCG has been proven in the DIB-Synch Plus program under New Zealand commercial farming conditions to increase pregnancy rates by 7%.

- **Consistency**
- **Potency**
- **Easy to reconstitute**
- **No particulate matter after mixing**
- **Stable after reconstitution 14 days at 25°C or 21 days at 4°C**

Modern non-cycling cow programs should include eCG for:

7% higher* in-calf rates at 28 days

3 more days in milk

** Compared with traditional 7 day progesterone programs. Shephard, R. NZVJ 2013*

Add Novormon eCG for higher in-calf rates

Novormon eCG has an ACVM approved label claim for reconstitution with Cyclase or diluent

Mixing Instructions for Novormon eCG

To reconstitute, use a sterile syringe and needle to withdraw 20 mL of supplied diluent or Cyclase and add to the freeze-dried eCG powder

Invert the contents until powder is fully dissolved

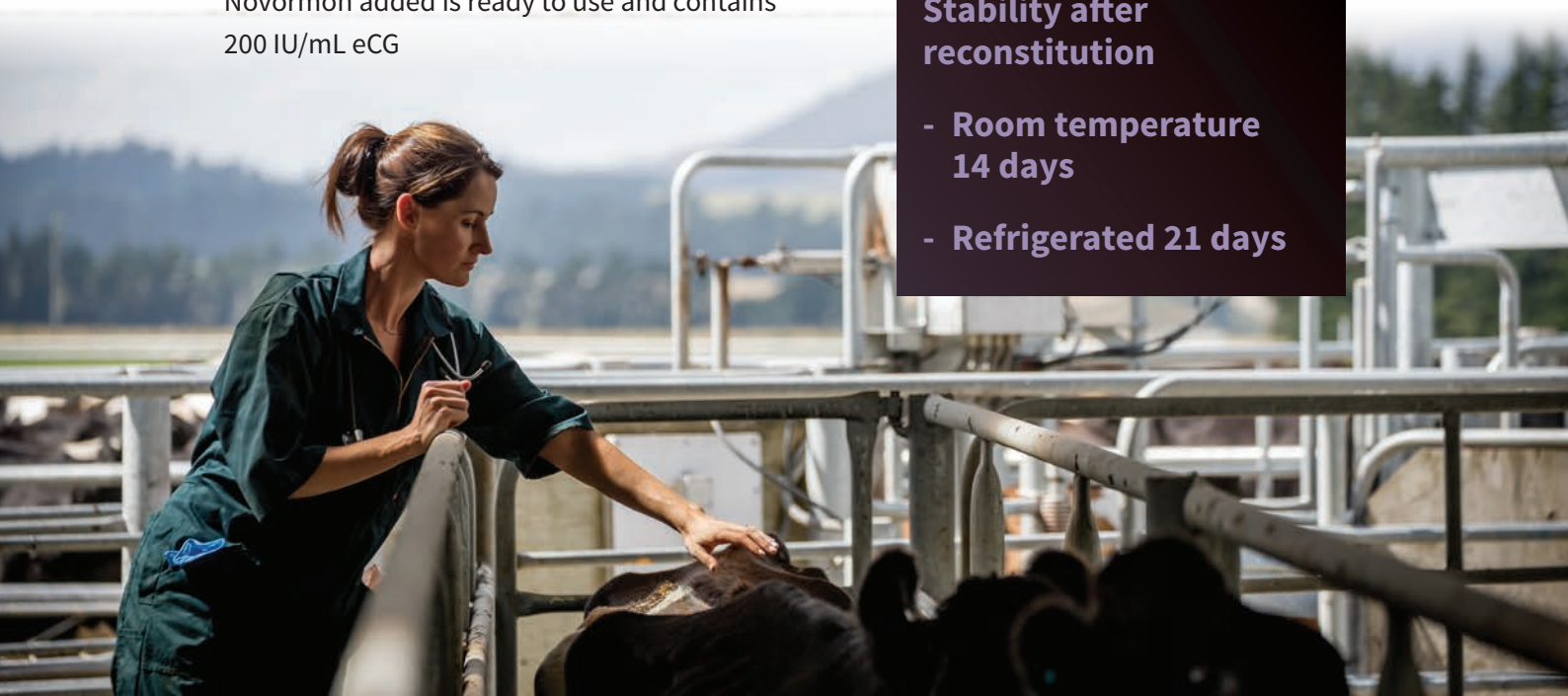
Withdraw the dissolved contents and return to either the diluent or the Cyclase vial (depending on your choice of diluent)

Add supplied red sticker to indicate the vial contains eCG and write the date of reconstitution

The 100mL plastic vial of diluent or Cyclase with Novormon added is ready to use and contains 200 IU/mL eCG

Stability after reconstitution

- **Room temperature 14 days**
- **Refrigerated 21 days**



Treat Endometritis Early

Treat dirty cows for higher in-calf rates

Endometritis is inflammation of the endometrium (uterine lining) usually caused by bacterial infection at calving.

Endometritis in dairy cows leads to:

- more non-cycling cows
- lower in-calf rates
- reduced conception rates
- higher empty rates

Check for dirty cows

Endometritis can be detected via inspection of vaginal mucous and secretions. The presence of any discolouration or flecks of pus in this fluid is likely a sign of infection.

Regular checks of cows should be made between calving and mating for best results.

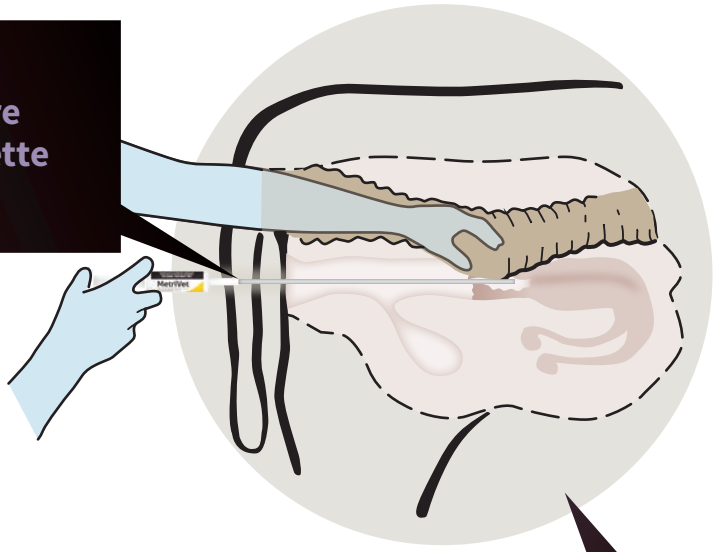
Treatment of endometritis with cephapirin has shown:

- Improved conception rates
- Higher in-calf rates
- Lower empty rates

MetriVet treatment

MetriVet has been proven to cure endometritis in NZ dairy cows

The delivery system for MetriVet provides secure union between the pipette and syringe



MetriVet is easier to infuse into the uterus of cows

Enhance veterinary expertise

AgriHealth will provide veterinary continuing professional development (CPD) to support expertise in cattle reproduction and endometritis treatment

Advanced Bovine Endometritis Workshops

Facilitated workshop

- to provide familiarity with latest findings on optimal timing of endometritis detection and treatment in cows
- demonstrate farmer benefits from treating cows with endometritis (in timely manner)
- practical tips to improve skills; including passing pipettes on farm and effective treatment

Includes clinical discussion, practical upskilling and optional on-farm workshop

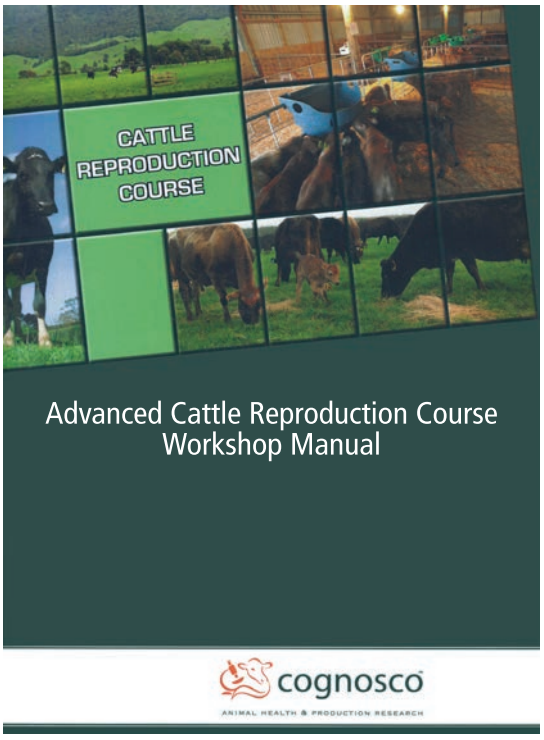
MetriVet training modules are customised to suit your vets

Marketing Plan – farmer communications

	August	September	October
Advertising to farmers – treat non-cyclers early to optimise profitability			
Ready to Mate video clips on web			
Clinic newsletters – treating non-cycling cows			
Farmer brochure			
Advertising to farmers – DIB benefits – ask your vet			
Advertising to farmers – using modern programs for non-cycling cows – ask your vet			

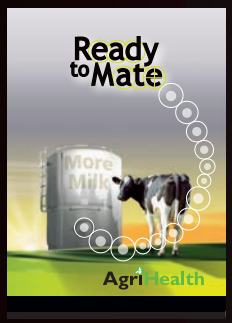
CPD & Tech Support

- **Sponsorship to Scott McDougall's Advanced Cattle Reproduction Course**
- **Industry agreed timing 'windows' for non-cycling cow and synchrony programs**
- **Knowledgeable and approachable advice always just a phone call away**
- **Clinic programs for practical skills and improving reproduction discussions with farmers**
- **Endometritis workshop – the why and the how**



Marketing Materials

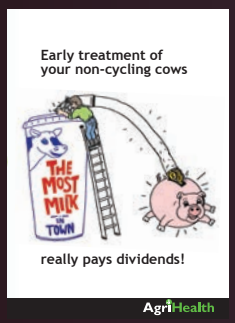
Resources for Vets and Farmers



Ready to Mate brochure

DIB brochure

Treating non-cyclers brochure



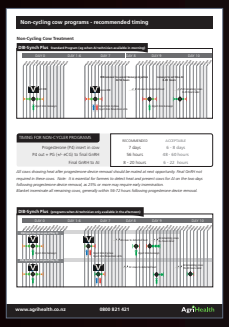
Treating non-cyclers brochure

AgriHealth Ready to Mate video clips

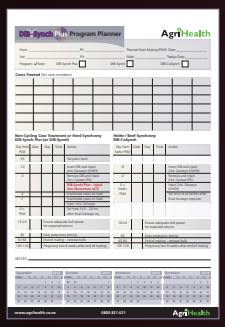
Timing wheel

AgriHealth Partnership

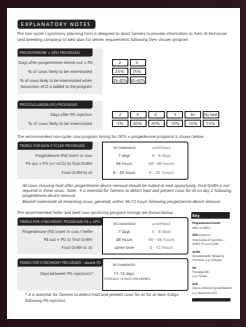
Slide rule



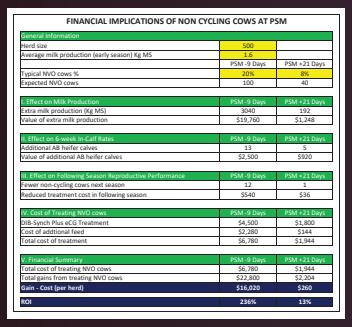
Timing chart



Program sheets



Industry agreed timing guidlines



General Information		
Herd size	500	
Average milk production (early season) Kg MS	1.6	
	PSM -9 Days	PSM +21 Days
Typical NVO cows %	20%	8%
Expected NVO cows	100	40

I. Effect on Milk Production	PSM -9 Days	PSM +21 Days
Extra milk production (kg MS)	3041	192
Value of extra milk production	$19,760	$1,248

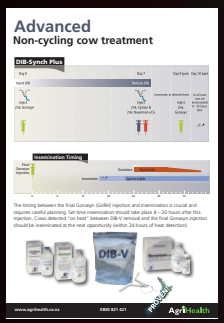
II. Effect on 6-week in-Calf Rates	PSM -9 Days	PSM +21 Days
Additional AB heifer calves	13	5
Value of additional AB heifer calves	$2,500	$920

III. Effect on Following Season Reproductive Performance	PSM -9 Days	PSM +21 Days
Fewer non-cycling cows next season	12	1
Reduced treatment cost in following season	$540	$36

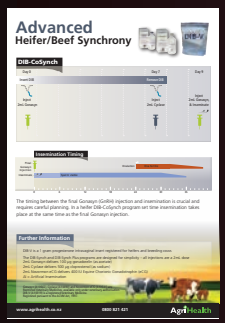
IV. Cost of Treating NVO cows	PSM -9 Days	PSM +21 Days
DIB-Synch Plus vEB Treatment	$4,500	$1,800
Cost of additional feed	$2,280	$144
Total cost of treatment	$6,780	$1,944

V. Financial Summary	PSM -9 Days	PSM +21 Days
Total cost of treating NVO cows	$6,780	$1,944
Total gains from treating NVO cows	$22,800	$2,204
Gain - Cost (per herd)	$16,020	$260
ROI	236%	13%

ROI calculator



Non-cycler program



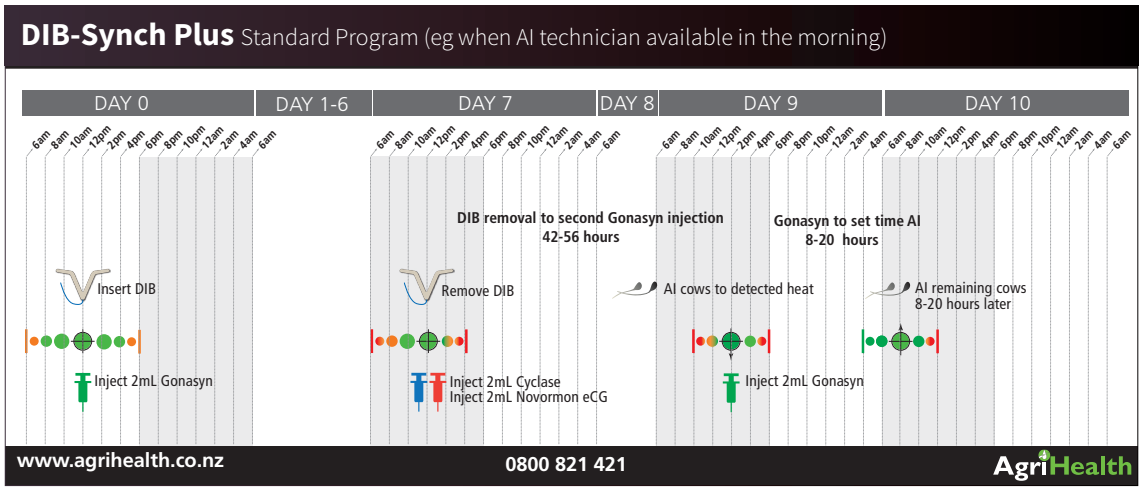
Synchrony program

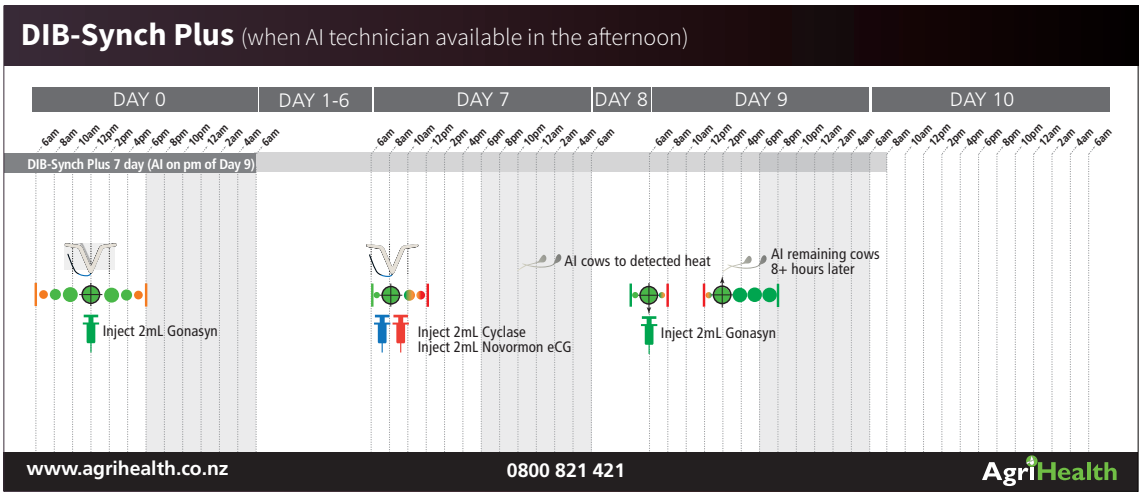
MetriVet brochure

Endometritis workshop

Timing of non-cycling cow programs

Ensure program timing is correct to maximise conception rates





Green signals optimal timing with red not recommended

With a standard 10 day program AI must occur in the morning and heat detection (with mating to detected heats) is required

If the AI technician is only available in the afternoon, a 9 day program is recommended with final Gonasyn early morning on day 9

Key Messages

Treating non-cycling cows 9 – 10 days prior to PSM with full program provides greatest farm return

- Optimise days in milk by mating treated cows on first day of AI for the herd
- Maximise in-calf rates by ensuring full program administered at the right times (P4 + GPG + eCG)

Treat early to optimise milk production and calving spread to reduce late calving cows in future years and allow culling options (as more cows pregnant, earlier)

Farm management factors the greatest contributor for poor reproductive performance

- Nutrition and BCS
- Heat detection
- Bull management
- Heifer growth rates, including weight at first mating and calving

Changing a few key areas will likely have the greatest impact on farm reproductive performance

Gonasyn (A10642), Cyclase (A10490), Novormon eCG (A10641) and MetriVet (A10955) are Restricted Veterinary Medicines, available only under veterinary authorisation. DIB-V (A10319), DIB-h (A10832) are registered Veterinary Medicines. Registered pursuant to the ACVM Act, 1997.

NEW ZEALAND PROVEN

Evidence based vet medicines www.agrihealth.co.nz 0800 821 421 AgriHealth