Dairy Cow Synchronization Protocols - 2016

Timed AI after detection of estrus

For herds with efficient and accurate estrus-detection systems in place.

EDAI → Start timed AI (**TAI**) program on cows not inseminated

50   **Days postpartum**   **80**

Definitions and comments:
EDAI = estrous detection and AI after detection of estrus.
Start and stop dates for EDAI depend on the voluntary waiting period (VWP) and the reproductive goals of the individual herd.

Presynchronization methods used before Timed AI

*Used with Ovsynch programs (listed below) to increase pregnancies per AI (**P/AI**). Programs can be used with or without estrous detection and AI (**EDAI**).*

A. 2xPGF

PGF   PGF   EDAI → **Start TAI program**
14 days   **10-14 days**

PGF = prostaglandin $F_{2\alpha}$.
GnRH = gonadotropin-releasing hormone.
Intensity of red color within EDAI denotes periods to expect most cows in estrus. Most cows come into estrus 2 to 7 d after PGF.

B. GnRH-PGF-GnRH

GnRH   PGF   GnRH → **Start TAI program**
7 days   **3 days**   **7 days**

C. PGF-GnRH

PGF   GnRH → **Start TAI program**
2 days   **6 days**

PGF   GnRH → **Start TAI program**
3 days   **7 days**

Ovsynch methods used for TAI

Can be used alone or with presynchronization methods (see above). Programs can be used with or without EDAI.

A. Ovsynch56

GnRH   PGF   GnRH   TAI
7 days   **56 h**   **16 h**

S	M	T	W	R	F	S

B. Ovsynch48

GnRH   PGF   GnRH   TAI
7 days   **48 h**   **24 h**

S	M	T	W	R	F	S

C. 5dCosynch72

GnRH   PGF   PGF   GnRH   TAI
5 days   **24 h**   **48 h**

S	M	T	W	R	F	S

D. Cosynch72

GnRH   PGF   GnRH   TAI
7 days   **72 h**

S	M	T	W	R	F	S

PGF   **GnRH**   **TAI**

Afternoon GnRH, morning TAI
Morning GnRH, morning TAI
Morning GnRH, afternoon TAI

A CIDR can be used with any of these programs (CIDR Ovsynch). The CIDR is inserted at first GnRH and removed at PGF. An example would be CIDR-Ovsynch56.

Presynchronization-Ovsynch Calendars

Calendars are examples of presynchronization-ovsynch combinations that are used for insemination. Any presynchronization program can be combined with any Ovsynch program. Any cow observed in estrus after the VWP can be inseminated. Cows will often show estrus 2 to 7 d after PGF.

2xPGF/Ovsynch56
(12 day interval to start of TAI program)

S	M	T	W	R	F	S

GnRH-PGF-GnRH/Ovsynch56
(Double Ovsynch)

S	M	T	W	R	F	S

GnRH-PGF/Ovsynch56
(G6G)

S	M	T	W	R	F	S

2xPGF/Cosynch72
(14 day interval to start of TAI program)

S	M	T	W	R	F	S

The synchronization efficiency and fertility may differ among the listed programs. Specific research data should be evaluated to determine the program that is optimal for use on a particular dairy.
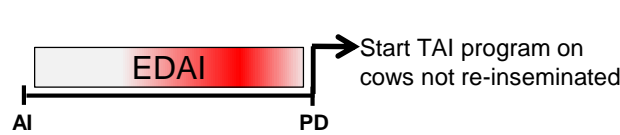
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Resynch methods

Any cow that is diagnosed open at pregnancy diagnosis (**PD**) can be resynchronized. Methods can be used with or without estrous detection and AI after observed estrus (**EDAI**).

A. Start Ovsynch method <u>after PD</u>.

Start TAI program on cows not re-inseminated
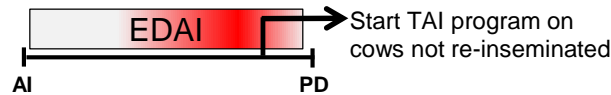
Example: Ovsynch56 Starting after PD

| | PGF | GnRH | TAI | PD |

The <u>black rectangle</u> denotes PD. PGF is administered to cows diagnosed open (not pregnant). Pregnant cows are not treated. <u>A CIDR</u> can be used in a resynch program according to the instructions on page 1.

<u>Intensity of red color within EDAI</u> denotes periods to expect most cows in estrus during EDAI. Open cows are typically observed in estrus on days 18 to 25 after AI. <u>Nomenclature</u>: The interval in days from previous AI to the start of the Resynch program (first GnRH) is denoted in front of the program (d32Ovsynch56, etc.).

B. Start timed AI method <u>before PD</u>.

Start TAI program on cows not re-inseminated

Example: Ovsynch56 Starting before PD

Example: 5dCosynch72 Starting before PD

*PGF is given to open cows (not pregnant). Pregnant cows are not treated after PD.

C. 1xPGF/Ovsynch

Start TAI program on cows not re-inseminated
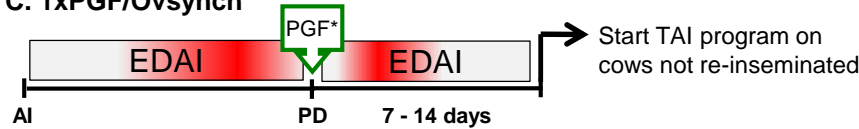
Example: 1XPGF/Ovsynch56

The 1XPGF/Ovsynch program can be used with any Ovsynch method.

PGF is administered to cows that have not been inseminated and are diagnosed open at PD.

<u>The intensity of red color within EDAI</u> denotes periods to expect most cows in estrus during EDAI. Open cows are typically observed in estrus on days 20 to 25 after AI or 2 to 7 d after PGF.

D. GnRH/Ovsynch

Start TAI program on cows not re-inseminated and diagnosed not pregnant
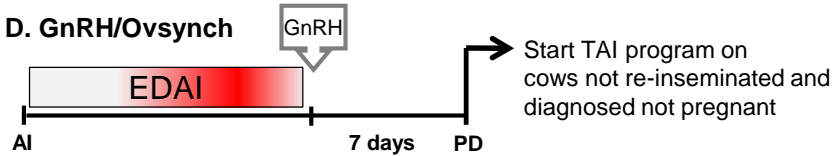
Example: GnRH/Ovsynch56

The GnRH/Ovsynch program can be used with any Ovsynch method.

GnRH is administered to cows that have not been re-inseminated at 32 +/- 3 d after previous AI. Cows do not usually come into estrus within one week after a GnRH injection.

Sample Calendars for Resynch Programs

Calendars are examples of resynch programs. Any resynch program can be used after an initial AI. Any cow observed in estrus before or during the Resynch can be inseminated.

Example: d32 Ovsynch56 Starting after PD

Example: d32 Ovsynch56 Starting before PD

The synchronization efficiency and fertility may differ among the listed programs. Specific research data should be evaluated to determine the program that is optimal for use on a particular dairy.

Compliance table

The following table is provided for reference. It shows the percentage of cows that receive all injections (yellow boxes) as a function of compliance at an individual injection. As an example, if 95 out of 100 cows receive their injection on any given day then the herd has 95% compliance. The greatest P/AI are achieved with 100% compliance so that all cows receive every injection. Farms should have a method to monitor compliance before they start a program.

Compliance	3 injection program	5 injection program
100%	100%	100%
95%	86%	77%
90%	73%	59%

This protocol sheet was assembled by members of the Dairy Cattle Reproduction Council (DCRC). Programs are intended to promote sustainable food production by the dairy industry through sound reproductive management practices. The DCRC recommends working with a licensed veterinarian for proper use and administration of all reproductive hormones.

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