

# Asia Dairy Network Website News Number 10

## from John Moran, your ADN Coordinator

Welcome to the tenth edition (Mar 2015) of the ADN News. This newsletter discuss how categorising milking cows into “wet” versus “dry” and pregnant versus non-pregnant can tell us much about their feeding and herd management on any dairy farm.

### **New insights into categorising the status of milking cows on any dairy farm**

There are various ways to categorise milking cows on any tropical dairy farm. Variables such as daily milk yield (for example, less than 8, 8 to 12, 12 to 16, more than 16 kg/cow/day) and stage of lactation (early, mid, late or non-lactating) are the most common categories used on tropical farms, large or small. There are other ways of categorising cows, which are just as easy and even more informative that are worthy of discussing. This article describes two even simpler categories and what they can tell us about the feeding and herd management on any farm. These are lactation and pregnancy status.

Adult cows are either lactating (wet) or non-lactating (dry). In the process of their full lactation they are either non-pregnant or pregnant. Pregnancy status is best determined through pregnancy diagnosis (that is an internal examination of the uterus by an experienced technician or veterinarian) but can also be ascertained by “return to service” (that is whether the cow cycles in about 21 days since she was last inseminated or serviced by a bull).

Each cow would be given one of four possible statuses as follows:

1. Wet and non-pregnant (W/NP) when the cow calves down and before she conceives, usually some time during early lactation.
2. Wet and pregnant (W/P), following conception and up to when the cow is dried off (either naturally or through management)
3. Dry and pregnant (D/P), between drying off and calving down; this determines the minimal length of the dry period..
4. Dry and non-pregnant (D/NP), which should not occur but unfortunately often does

Using a range of typical scenarios on any tropical dairy farm, the following tables provide data on the minimal length of the dry period and the proportion of cows (including first calf heifers) in each category. The D/NP category is not included in this table because on any well managed farm, all cows should successfully conceive some time during their lactation. It is assumed that the gestation period is 280 days in length. The calving interval can be as low as 360 days, but is typically more like 400 days on most well-managed farms. The following tables are for year round calving herds where the data represents the proportion of the herd in any one status on any one day during the year.

These scenarios for herd averages listed in Table 1 and 2 are for:

- Days from calving to conception; which is assumed to occur on average either at 90, 120 or 150 days into lactation
- Lactation length: this is assumed to range from 240 days to 330 days in monthly steps (of 30 days for each month)

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**Table 1** The influence of days from calving to conception and lactation length on the calving interval and on the length of the dry period

Lactation length (days)	Calving to conception (days)		
	90	120	150
	Calving interval (days)		
	370	400	430
330	40	70	100
300	70	100	130
270	100	130	160
240	130	160	190

It is recommended that cows are dried off at least 60 days before they are due to next calve down to allow the udder to fully recuperate in preparation for the next lactation. Therefore the dry period in cows conceiving within 90 days of calving and milking for 330 days would be too short, hence they should ideally be dried off after 310 days milking. From Table 1, with calving intervals ranging from 370 to 430 days (or 12.3 to 14.3 months), the associated dry periods range from 40 to 190 days. Clearly, the earlier cows conceive after calving and greater proportion of their calving interval that the cows are actually milking for, the greater the income generated through milk production.

**Table 2** The influence of days from calving to conception and lactation length on the percentage of milking cows in the herd in one of three cow categories, namely wet/non-pregnant (W/NP), wet/pregnant (W/P) or dry/pregnant (D/P).

Lactation length (days)	Status (% herd)	Calving to conception (days)		
		90	120	150
330	W/NP	24	30	35
	W/P	65	52	42
	D/P	11	18	23
300	W/NP	24	30	35
	W/P	57	45	35
	D/P	19	25	30
270	W/NP	24	30	35
	W/P	49	37	28
	D/P	27	33	37
240	W/NP	24	30	35
	W/P	41	30	21
	D/P	35	40	44

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There are no additional nutrient costs of pregnancy to milking cows if they are non-pregnant or are in their first five months (150 days) of pregnancy. So the occurrence of pregnancy is unlikely to adversely impact the cow's milk yields and/or feed efficiency until the last few months of pregnancy, which generally occurs during their dry period.

The important numbers in Table 2 are then the percentages of cows in the herd that are dry and pregnant because this is the period (once lactation ceases) they must go through to grow the calf *in utero* and when income generation falls to zero. With cows conceiving earlier after calving and milking for longer, these cows can number less than 20% of the herd. However if conceptions are delayed and the cows are suffering from short lactations, this number can exceed 40%.

In both these cases, namely delayed conception and early drying off, close attention to feeding management is of the utmost importance to address these problems. This is essential firstly, so cows can minimise the period of their weight loss, to allow the post-calving hormonal cycle to initiate the oestral cycles that are essential for successful ovulations and consequential conceptions. Secondly, it is necessary to provide the necessary supplies of feed nutrients within the udder to produce sufficient long term quantities of milk precursors to minimise any likelihood of nutritionally induced short lactations. This is particularly relevant to many tropical small holder dairy systems as the genetic merit of their cows is rapidly improving through the use of improved dairy genes either through imported semen and/or live animals. Unfortunately, associated with this is an increasing occurrence of repeat breeding as well as short lactations arising from inadequate supplies of feed nutrients, particularly energy and protein.

### ***Dealing with dry/non-pregnant cows***

Table 2 does not deal with the fourth category in milking herds, namely the D/NP cows. These cows will be non-productive for many months and will cost money every day for at least the next 280 days. If their condition is nutritionally induced, without any change in feeding management, it is likely to be a lot longer than 280 days before they generate any milk income. If the condition is due to animal health issues, then that urgently needs to be diagnosed and treated. A decision will also have to be made as to whether such animals should remain in the herd or be sold as non-productive cull cows.

In summary, dairy cows within any herd of any size can be easily identified as W/NP, W/P, D/P or D/NP to provide an additional tool with which to approach improved feeding and herd management. All it requires is a good set of eyes, a calculator and a note book. Over time, as we collect additional data, we will be able to provide more definite herd management guidelines, such as threshold percentages of D/P and D/NP (ideally zero) when immediate action is required.

In addition, with further data collection it will be possible to put monetary values on these percentages for the likely financial returns arising from investing in the required improved feeding and herd management.