

Fat Evaluation Index (FEI) Grading System

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FEI is a measure of the fatty acid profile of the milk, and isn't a direct measure of the amount of PKE fed. FEI was introduced as tanker-side test in May 2017 to ensure milk is fit-for-purpose. It is important to note that liquid milk is not affected by a high FEI, but a high FEI means that the fatty acid profile is such that set products liquefy and don't meet consumer requirements, including for export markets.

The demerit system is starting this month. Testing on the docket is rapid, low cost and gives a rolling 6-day average. Farms have to hit the C grade on three consecutive pickups for a second, confirmatory test called a "wet-test" to be run. If PKE usage is pulled back, and the wet test falls into a B-grade or better, then Fonterra covers the cost of the test. If on the wet test the grade comes back as a C-grade, then the farmer pays for the testing, and receives the demerits. If the farmer remains C-grade on tanker-side testing, then another wet test is run after another 3 consecutive C-grades.

Grading Framework

		FEI Result	Demerit	Deductions
A	Meets requirements	< 7.50		
B	Meets requirements but is approaching threshold limit	7.50 – 9.00	Alert	
C	Exceeds threshold limit	9.01 – 11.00	2 demerits	10% per collection day
D	Well in excess of threshold limit	> 11.00	4 demerits	20% per collection day

Many factors can affect the FEI including:

- Amount of PKE fed
- Concurrent feeding
- Environmental/climatic conditions
- Genetics
- Breeding

The amount of oil remaining in PKE is the single biggest impacting factor on the on the FEI.

Too rapid of a transition onto many feeds, particularly starch feeds, will lead to spikes in the FEI. In some cases even when no PKE is fed, and cows are dumped on a new, high starch feed they can grade. This phenomenon isn't well understood, but is thought to do with rumen metabolism. There are some schools of thought that the usage of high-sugar feeds (including molasses) will buffer the

FEI after cows are weaned onto the new feed. Essentially feeding anything else aside from PKE will dilute the FEI due to displacement.

Feeding fodder beet and PKE increases FEI above feeding PKE alone. Fodder beet results in a different fatty acid profile in the milk. It is thought that the FEI is influenced indirectly through altered rumen metabolism. Fodder beet mainly produces butyrate in the rumen, which is quite different than PKE. Also when there are large quantities of fodder beet in the diet this means there are less of the types of fatty acids that come from pasture going into the milk.

Weather spikes can occur as a result of milk volume reducing and not having the power to dilute the fatty acid profile going into the vat. Anything that can acutely drop milk volume, including no or limited access to water, can cause an FEI spike. Hovering around the high A-grade will mean that there is enough head room in the grade to accommodate this should a weather front be anticipated for example.

Management strategies for keeping FEI under control depend on many factors, and there isn't a one-size-fits-all solution.

- Short term management
 - Reduce PKE feeding level to the milkers
 - Depending on time of season:
 - Dry off
 - Divert PKE into dry stock to prioritise pasture and other feeds into the remaining milkers
- Long term management
 - Evaluate farm strategy
 - Seek advice from your consultant

PKE still remains a useful feed at certain times of year and in certain classes of stock. FEI isn't cumulative, so large quantities of PKE fed during the dry period don't have a carryover effect for the coming lactation. PKE remains one of the most efficient feeds for weight gain, for reasons that aren't particularly well understood.

If you have concerns about your FEI at any point we are happy to discuss this with you. This advice can be used to help reduce the grades in the immediate future, but can also help you to build your farm strategy away from PKE should that be needed. Don't hesitate to contact the clinic today to speak to Charlene.