

PASTURES PERFORM WELL WITH CROPS

Dairy pastures grown within a complementary forage system (CFS) can outperform conventional pastures. This is one of the findings from the first year's results of FutureDairy's Hunter Valley monitor farms.

The study involves close collaboration between six Hunter Valley farmers, Industry and Investment (I&I) and the FutureDairy team. Kerry Kempton and Anthea Lisle, both with I&I, worked closely with the farmers during the project.

FutureDairy project leader, Associate Professor Yani Garcia, said that four of the six participating farms had achieved yields of more than 27t DM/ha from the CFS. And on three farms, the pasture phase in the CFS contributed more than 12 tonnes of dry matter per hectare.

A CFS involves allocating a portion of the farm to intensive production to increase productivity from home-grown feed. It usually involves cropping, sometimes double or triple cropping. Crops may include a legume for nitrogen fixation, a bulk crop such as a cereal or maize for silage, and a brassica (forage rape) to break pest and disease cycles.

Participating farmers chose a crop combination to suit their individual situation. Four farms grew a typical CFS with summer bulk crop for silage followed by an autumn-sown pasture/forage crop mix. The fifth farm operates a cut and carry system so grew three crops while the sixth 'control' farm grew a crop for grazing and silage followed by perennial ryegrass/clover pasture.

The crop and pasture combinations grown were:

1. CFS: Maize for silage followed by annual ryegrass/brassica/oats
2. CFS: Maize for silage followed by annual ryegrass/brassica
3. CFS: Maize for silage followed by annual ryegrass alone
4. CFS: Forage sorghum for grazing/silage followed by ryegrass/lucerne/chicory/oats
5. Cut and carry: maize for silage followed by maize for silage followed by triticale/maple peas
6. Control: forage sorghum for grazing/silage followed by perennial ryegrass/clover

Two of the farms achieved almost 15t DM/ha from their pasture phase plus another 20t/DM/ha from maize silage grown on the same land earlier in the season (see table).

Assoc Professor Garcia said irrigated dairy farms in the Hunter area average 10-12t DM harvested from pasture for the whole year.

"Our monitor farmers have done well to harvest 10-14.5t DM/ha from pasture. It's a fabulous result when you add in the maize or sorghum yields as well," he said.

While most of the farmers had grown crops before, the intensively managed CFS was a new approach. Growing maize and brassicas was new for some.

Assoc Professor Garcia believes several factors contributed to the high pasture yields with the CFS, with a key reason being the planning process undertaken by each farmer, well before the first seed in the CFS is planted.

A key reason for opting for the more intensively managed CFS is to increase the amount of home-grown forage and reduce reliance on purchased feed.

On average, the four CFS farms increased the amount of home-grown feed by 13% (per ha) and 17% across the total farm, while reducing costs by 12%.

FutureDairy and I&I gratefully acknowledge the generous co-operation of their six monitor farms.

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FutureDairy's major sponsors are Dairy Australia, Industry and Investment (formerly DPI NSW), DeLaval and the University of Sydney. Other supporters include the Dairy Research Foundation and DairyNSW.



(from left) FutureDairy project leader, Yani Garcia with Singleton dairy farmer George Allen and project officer David Deane.

TABLE: SUMMARY OF IMPACT OF CFS APPLICATION ACROSS THE SIX HUNTER VALLEY MONITOR FARMS

Cropping System	CFS 1	CFS 2	CFS 3	CFS 4	Cut and Carry	Control
CFS Rotation used from October 2009 (yields achieved to November 2010)	Maize (silage): <i>21tDM/ha</i> Brassica/ annual ryegrass : <i>14.8 tDM/ha</i>	Maize (silage): <i>15tDM/ha</i> Annual ryegrass: <i>12.2tDM /ha</i>	Forage sorghum (grazing and silage): <i>12.8tDM/ha</i> Ryegrass/ lucerne/ chicory/oats mix: <i>10.05tDM/ha</i>	Maize (silage): <i>19.5tDM /ha</i> Brassica/ annual ryegrass/ oats: <i>14.4tDM /ha</i>	Maize 1 (silage): <i>15.9tDM /ha</i> Maize 2 (silage): <i>9.5tDM/ ha</i> Triticale with maple peas: <i>6.8tDM /ha</i>	Forage sorghum (grazing and silage): <i>10tDM/ha</i> Perennial ryegrass/ clover: <i>2.8tDM/ha</i>
Total yield on CFS area	35.8tDM /ha	27.2tDM /ha	22.85tDM /ha	33.9tDM /ha	32.2tDM /ha	12.84tDM /ha
CFS area: ha	17 ha	10 ha	9 ha	8 ha	20 ha	8 ha
CFS area :% of milking area	15%	15%	15%	15%	14%	6%
Change in forage utilisation tDM	15%	44%	4%	22%	11%	5%
Change in forage utilisation tDM/ha	15%	3%	10%	26%	10%	5%
Change in cost of home grown feed \$/tDM	-7.6%	-23%	-25%	6%	29%	4%