

Grass into milk in Germany

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In terms of area, Germany is seven times larger than Ireland. Tillage and forestry are the two dominant 'crops' in the country, with pasture much less common than in Ireland. Milk is mainly produced by housed cows feeding on a primarily maize silage diet.

Farmers in Germany get a bonus of between 1-1.5c/l for milk from cows that are grazed outdoors for 120 days of the year or more. Nonetheless, grazing herds are in the minority – I visited two of them with my discussion group in late September.

The first has an Irish connection. It's owned by the Costellos from Tuam in Co Galway and is located in the Brandenburg area, formerly East Germany. The second is the Kiel University Research Farm located in the north of the country, close to the Baltic coast.

Manager of the university farm, Dr Ralf Loges, and myself are part of a 15-country EU project, 'Resilience for Dairy'. The aim is to identify ways to enhance the resilience of dairy farm businesses.

Farming operation

The Costello farm comprises a total of 735ha. Around 300ha of this land forms the milking platform and 152ha is used to conserve silage. A further 56ha is sandy and used to out-winter the cows. Some of this land is close to the milking parlour and cows near to calving are brought there to calve, typically starting in mid-February.

The rest of the farm is managed extensively and forms part of a nature reserve. The land is a mixture of owned and leased plots from multiple land owners. Previously, it was a communist era collective farm. The family also operates an anaerobic digester, a tillage farm and a 3,000 sow pig unit.

The Costellos calve around 900 cows outdoors, but milk only 850. Surplus calved cows are exported in-milk to farms in France and the Netherlands. The start of calving is around 15 February and they have a six-week calving rate of 90%, with a mean calving date of 15 March.

The empty rate averages 10% following a 12-week breeding season. Breeding starts on 15 May and cows are AI'd twice a day by a LIC technician.



Paul Costello and Kevin Kearns.

Milk production

Last year, the cows produced 440kg of milk solids per head at 4.82% fat and 3.84% protein. Somatic cell count was a respectable 137,000 cells/ml SCC. Between 900kg and 1,000kg concentrate/head (currently costing €332/t) will be fed this year because of a particularly prolonged drought in mid-summer.

"Our aim is to feed around 800kg concentrate per head per annum," says Paul Costello. "The current milk price operates off a base of 56c/l for milk of 4.6% fat and 3.4% protein content. Bonuses of 3c/l and 5c/l are paid per 0.1% higher fat and protein respectively."

Many of the Costello cows were purchased as heifer calves from Irish farms and reared in Ireland before being exported to Germany.

Calves and replacements

"Replacement heifer calves are reared on the farm and sent, after weaning, to a contract rearer until close to calving," adds Paul. All of the replacement heifers are bred to Angus stock bulls.

"Beef calves are reared for two weeks and then sold – approximately 200 went to France in 2022," says farm manager Kevin Kearns. Many of the crossbred males are sold, also at two weeks of age, to local smallholders for rearing to beef.

A further 150-200 Angus crosses are reared on the farm until they weigh 200kg and are then sold to a finisher. Because of this summer's drought,



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The Brandenburg herd.



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they are currently being fed 2kg meal and grass silage.

Workforce

“We currently have six workers on-farm (including Kevin Kearns who has a diploma in Dairy Farm Management from Moorepark),” says Paul. “The workforce peaks at 10 (including student labour) in the spring during the busy calving season.”

Grass figures

In 2021, the milking platform grew 13.2t DM/ha, with 130kg fertiliser N/ha applied to the milking platform in addition to pig slurry. The Costellos have adjusted their grass growing

system to suit the continental climate.

Growth is slow in the spring, but takes off rapidly from mid-March, so the earlier-calved cows are reliant on silage and meals until then. The business purchases maize silage at 35c/kg DM, which is used to feed to the cows in early and late lactation.

“Huge flocks of geese overwinter on the farm, so average farm cover is effectively zero at the start of March and in late autumn, any grass that’s around is grazed off,” says Kevin.

First-cut silage is harvested towards the end of May with 40-50% of the platform harvested for first cut. Grass growth slows down in mid-summer and they use a zero grazer from July to August to harvest grass from the silage blocks and extend the rotation to keep grass in the diet.

In mid-September, the grass was on the rebound after the drought and

they recorded a growth rate of 62kg DM/ha/day – this had fallen back to the 40s on the date of our visit (27 September).

Challenges facing the business

“One of the challenges of translating our system to Germany was that there is no history of compact seasonal calving there,” says Paul.

“In Ireland, compact calving of heifers can be relied upon as a ‘back shove’ to keep the herd compactly calved – this is not happening in Germany.” The replacement heifers are contract reared on a mainly indoor type system.

The second challenge to this business is securing expertise around grass-based seasonal dairying. The performance of the business is dependent on employing a manager who has the skill set and capacity to make this system a success.

Lindhof Farm Visit

The Lindhof Research Farm is an organic mixed farm with 110 spring-calving cows (80 Jerseys, 10 Anglen cattle and 20 Jersey crossbreeds). The Anglen breed is native to the area and related to the other Scandinavian red breeds in the region.

The farm comprises 120ha of short grass rotation and tillage land and 12ha of permanent pasture (which can’t be ploughed).

Sward rotation

The rotation on the farm is two years in multi-species swards (including clovers, chicory and plantain) followed by three years in tillage. Grazing runs from end of February to end of November. I would estimate grass



Housing on the Lindhof farm.



Lindhof cows.

utilisation per cow at 4.2t DM/head, plus an estimated 675kg DM maize silage fed per cow. There are 10ha of maize silage grown and fed to the cows and 50ha of grass clover swards for the main grazing season, supported by 25ha from the tillage lands, which is undersown with grass seed after cereals are sown and become available in the autumn.

Then, 25ha of the pasture is ploughed in late March after two to three grazings have been taken. This means that during the shoulders of the year, the 110 cows have 75ha available to graze.

Assuming that the 25ha grows the equivalent of 25% of annual grass yield and that the 50ha of grassland is grazed with an additional 10ha maize silage for winter forage, the adjusted stocking rate is 1.66 LU/ha overall (6.25+50+10ha/110 cows) or a forage utilisation figure of 8.1t DM/ha.

This figure is comparable to the Irish national average for conventional dairy farms.

Grazing management

When grazing the grass clover swards, pre-grazing covers of 800kg DM/ha are grazed to prevent bloat in the cows, because it takes longer to graze such low covers.

An average 850kg of home-grown cereals is equivalent to 120g concentrates per kg ECM and a carbon footprint of 600g CO₂ eq/kg milk. Milk solids yield was 590kg per cow in 2021.

Yield on the day of our visit (28 September) was 18l at 5.9% fat and 4.2% protein, with 2kg meal fed per head.

With an annual average SCC of <100,000 cells/ml, only 20 cows received antibiotics at dry off with

selective dry cow therapy, using teat sealants applied to the rest of the herd.

Wintering the cows

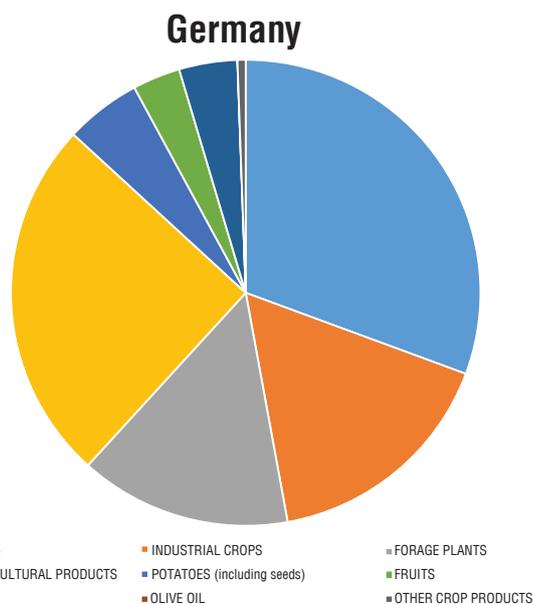
Cows on the farm are wintered in straw-bedded barns adjacent to the milking parlour. The shed has a straw chopper that effectively runs on a monorail. Ralf says that not driving over the bed reduces compaction and straw requirement by around 50%.

The stand out feature of the visit to Lindhof was the level of production

being achieved in an organic system.

Certainly, the soil on the farm is very free-draining and fertile, but Ralf and his team have worked hard to develop a system of grass-based milk production that complements the climatic and soil challenges that they face in the area.

We also noted how often Ralf talked about consulting with Teagasc colleagues James Humphries and Frank Buckley when developing the system that he now successfully operates at Lindhof.



Key facts

- There are 3.8m dairy cows in Germany compared to 1.55m dairy cows in Ireland.
- Less than 20% of German milk is exported compared to around 90% of Irish milk.
- Milk output/cow is about 7,606kg in Germany against circa 5,983kg in Ireland.