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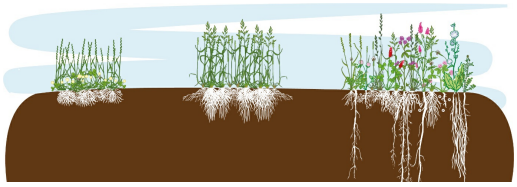
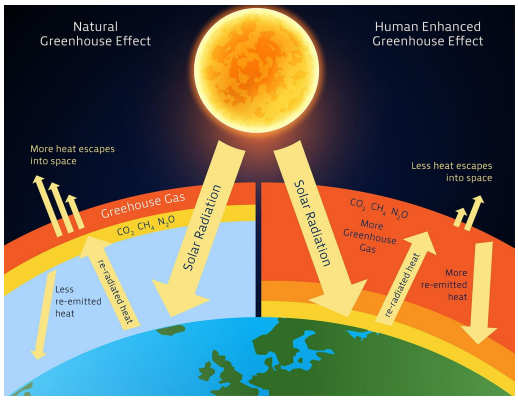
Multispecies Swards: A Salad Bar Treat for Livestock – More Meat, More Milk, Less Methane





Many farmers today are exploring the benefits of **multispecies swards**. Compared to traditional grass-only pastures (perennial ryegrass), these diverse mixtures offer a more balanced diet for livestock, leading to healthier animals, better production, and even environmental gains [1].

But what exactly are multispecies swards? And when does a pasture truly count as **"multispecies"**? Let's break it down. The word ***"multi-"*** means *many or multiple (+* ***species*** *= kinds of plants)*, and a ***sward*** is a community of low-growing herbaceous plants that forms a continuous ground cover. So, in simple terms, a *multispecies sward is a grassland made up of several different kinds of plants.*

Now, how many is "many"? If you're thinking two, like ryegrass and clover, that's called a binary mix (from **"bi,"**meaning *two*). A true multispecies sward usually includes three or more species. At this point, you might ask, "So if I grow three species of grasses, like ryegrass, timothy, and tall fescue, does that count?" Technically, yes, but to get the real benefits, it's not just about the number of plants or species, but also about which functional group they belong to.

The Real Mutispecies Swards is like a bowl of salad.

The best **multispecies swards** are made up of three functional groups of plants [1]: ***grasses***, ***legumes*** like clovers, and ***herbs*** such as chicory and plantain. Each group plays a different role, and when they grow together, they don't fight over space or nutrients; they actually help each other out [2–4]. Together, these plants use the soil and sunlight in their own unique ways. Some grow deep (chicory), some spread wide (white clover), some grow fast (perennial ryegrass), and others hold strong in dry spells (chicory and plantain). That means they don't all crowd into the same space or steal the same nutrients. Instead, they fill in the gaps, making the pasture thicker, more even, and more resilient.

Grasses are your foundation plants. They grow fast, and they provide plenty of bulk and energy for the animals. Think of ryegrass or timothy, they fill the belly and give structure to the sward.

Legumes like white or red clover are the protein boosters. They're like the meat in the sandwich, rich in nutrients (protein) that help with milk production, muscle growth, and overall animal performance [5,6]. Plus, they bring natural fertility to the pasture by capturing nitrogen from the air and sharing it with the plants around them.

Then there are the **herbs,** plants like chicory, which has deep roots and lots of minerals [7], and plantain, which is known to support digestion and help reduce worm problems [8]. They might not be as bulky as grasses or as rich as clover, but they round out the meal and give animals the extras they

need to stay healthy. According to a study, lambs grazing on more diverse swards (like the 6-species and 9-species mixes) needed fewer anthelmintic treatments, only about 1 to 1.5 times compared to those on ryegrass-only swards, which required nearly 3 treatments. This suggests that diverse pastures can naturally help reduce parasite burdens, improving animal health and lowering drug use [8].

So, it's a bit like making a good salad. Lettuce gives the base, tomatoes add juiciness, nuts bring crunch, and maybe some cheese for richness. Each part is different—but together, it makes a **balanced, satisfying meal**. That's exactly what a multispecies sward offers your animals: **variety, balance, and better nutrition** in every bite. And just like we feel better when we eat a good mix of food, cattle and sheep thrive when their pasture offers more than just one type of plant.

Now, why does this mix matter so much for your animals?

When cattle and sheep graze on multispecies swards, their digestion improves. In New Zealand, a study analysed how chicory and plantain proportions affect grazing behaviour and rumination time in dairy cows. (***Rumination*** *is when cows bring up food they've already eaten (cud), chewit again, and swallowit to help with digestion. It's also called 'chewing the cud'.*) The study found that cows grazing on pastures rich in chicory and plantain spent up to 90 minutes less time ruminating each day [7]. They also showed faster intake and less time spent chewing [7].

Why does this matter? When cows eat plants that are easier to digest, like chicory and plantain, they spend less energy chewing and breaking down feed. This improves feed conversion efficiency, meaning more milk or meat is produced from the same amount of feed.

Shorter rumination time can also mean that cows graze faster, which affects how long they stay in each paddock. Farmers can use this insight to fine-tune grazing rotations and make better use of their pasture.

https://www.cotswoldseeds.com/articles/343/mob-grazing

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Fact	**What It Means for Farmers**	**Everyday Comparison**
265 minutes eating/day	Cows eat for over 4 hours daily. Less time may signal a problem—or simply reflect high-quality forage that's easier to chew and digest.	Imagine watching two full-length movies just for eating each day.
441 minutes ruminating/day	Over 7 hours chewing cud—essential for digestion and rumen health. Less rumination can be normal with high-quality forage.	Think of spending an entire night chewing instead of sleeping.
17,077 chews/day	Cows chew a lot—important for digesting fiber and stimulating saliva.	Like chewing once every 5 seconds, all day long—even while resting!

578 cuds regurgitated/day	Fewer cuds might be fine with good forage—watch for sudden drops.	Regurgitating your food to re-chew it every 2–3 minutes all day—normal for cows, strange for us!
55 chews per cud	Cows give each cud around 55 chews—this breaks fiber down properly before swallowing again.	Imagine chewing each bite of a sandwich 55 times before swallowing—it'd take forever to eat lunch!
Average daily saliva production (L/day): Eating = 63.2, Resting = 90.7, Ruminating = 106.0	Cows produce about 100 to 150 liters of saliva daily—most during rumination. Saliva helps buffer rumen pH and aids digestion, making it vital for cow health and productivity.	That's enough saliva to fill a bathtub each day.

Source: *Braun, U., Zürcher, S., & Hässig, M. (2015). Evaluation of eating and rumination behaviour in 300 cows of three different breeds using a noseband pressure sensor. BMC veterinary research, 11(1), 231.; Beauchemin, K. A. (2018). Invited review: Current perspectives on eating and rumination activity in dairy cows. Journal of dairy science, 101(6), 4762-4784.*

On top of that, multispecies swards help feed the **good microbes** in a cow's stomach, *the tiny helpers in the rumen that play a big role in digestion*. These microbes break down tough plant fibers and turn them into energy and nutrients that the cow can actually use. Different plant species offer a wider range of nutrients and compounds that support a more diverse and active microbial population. The more variety in the diet, the more types of microbes can thrive, and when those microbes are well-fed and working efficiently, the cow gets more out of every bite.

And this isn't just good for digestion, it also shows up in the milk tank. A study from France found that dairy cows grazing on multispecies pastures gave **0.8 kg** more milk per day, **0.04 kg** more milk solids, and ate **1.5 kg** more dry matter each day compared to cows on simpler pastures like ryegrass and clover. These gains were linked to better-quality forage and higher intake, especially from plants like clover and chicory.

A similar trend was seen in Ireland, this time with sheep. Ewes grazing on **6-** and **9-species swards** had significantly higher live weights and better ***body condition scores*** **(BCS)** throughout the study compared to those grazing a ryegrass-only sward. (**Body condition score** is a simple way to tell if an animal is too thin, too fat, or just right by checking fat cover on the body.) Lambs grazing the **6-species sward** were heavier at 14 weeks of age, and lambs on the ryegrass-only sward took longer to reach slaughter weight than those on any multispecies mix.

So, by planting a more diverse mix of pasture plants, farmers can support a healthy rumen and boost both milk and meat production. It's a natural way to get more from your pasture and your livestock.

But there's another bonus that's just as important: less gas, especially less methane.

We often hear about **methane** and the need to reduce it, but what exactly is it, and why is it such a big deal? To understand that, we need to talk briefly about the ***greenhouse effect*** and ***greenhouse gases*****.**

Greenhouse gases are gases in the atmosphere that trap heat from the sun, keeping the Earth warm enough for life. The most common ones are *carbon dioxide (CO_2), methane (CH_4),* and *nitrous oxide (N_2O)*. These gases act like a blanket around the planet—this is what we call the **greenhouse effect** (NASA Science)**.**

This effect is natural and necessary, but the problem is that today, greenhouse gases are building up too much due to human activities and livestock farming plays a part in that too. As ruminants like cows and sheep digest their food, they naturally release **methane,** mostly through *burping*. This happens when certain microbes in the rumen break down fibrous, hard-to-digest plants like plain grasses. Methane is a by-product of that process.

And here's the important part: ***methane is about 28 times more powerful*** *than carbon dioxide when it comes to trapping heat over a 100-year period* (European Commission - Methane Emissions*)*. That means even small amounts can have a big impact on global warming .

The trouble is, methane isn't just a climate problem, it also accounts for the **loss of 2%–12% of the energy**consumed by livestock [9]. Every bit of methane a cow releases is energy that didn't go into making milk, meat, or growth. So it's a loss for both the farmer and the environment. For example, a high-yielding dairy cow consuming 20 kg of dry matter per day could be losing the energy equivalent of 0.5 to 2.5 kg of feed through methane emissions. That "wasted" energy could otherwise have produced an extra liter or two of milk daily, which, over the course of a lactation, adds up to a significant economic loss for the farmer.

This is where multispecies swards come in. Some plants in the mix actually change how digestion works inside the animal. For example, **clover** and **chicory** help the gut microbes produce more useful energy and less waste gas like methane. These plants support the good microbes that boost growth and milk, while reducing the activity of microbes that produce methane.

Plantain also plays a helpful role by speeding up how fast feed moves through the stomach. This gives methane-producing microbes less time to create gas, like finishing a job quicker with less mess. Some legumes, like **clovers** and **birdsfoot trefoil**, contain natural compounds that gently slow down gas-producing microbes, making digestion more efficient.

So, when animals graze on a diverse mix of plants, their stomachs work better, digestion becomes more efficient, and less methane is released. More of the feed's energy goes into producing milk and meat, not into the air.

Over time, this means better feed efficiency and less waste. Animals produce more with less, giving you more value from your pasture. Less gas in the air means more profit in your pocket because when animals release less methane, more of the feed's energy stays in the animal and goes into milk or meat. If a cow keeps just enough extra energy to make one more liter of milk a day, that's over 300 extra liters in a year. At £0.40 per liter, that's around £120 more income per cow. For a 100-cow herd, that's over £12,000 extra each year, simply by making better use of the feed you already grow.

Whether you're milking cows, finishing beef cattle, or raising sheep, a well-planned pasture mix not only supports animal health and performance, it also reduces emissions, helping you run a smarter, more sustainable farm without extra effort.

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