FEED MANUFACTURING

Mixing on farm: getting an even mix

Order of addition, mixing time, pre-blending premix and how to check mix uniformity. A practical guide to mixing livestock feed on farm.

By FeedSport Nutrition Team · Published 6 October 2026 · Updated 23 October 2026 · 3 min read

KEY POINTS

- Pre-blend premix, amino acids and salt with a carrier before adding them to the main batch.
- Add ingredients in a set order: part of the grain, then the pre-blend, then protein meals, then the rest of the grain, then liquids last.
- Follow the mixer manufacturer's mixing time. Under-mixing is common, and over-mixing can cause separation.
- Grind ingredients to a similar particle size to reduce separation after mixing.

A diet is only as good as the mix. If premix, amino acids or minerals are not evenly distributed, some animals get too much and others too little, even though the formula is correct on paper.

Why small ingredients are the problem

Major ingredients like sorghum and soybean meal make up most of the batch and spread easily. The difficult ones are the small-inclusion items:

- Vitamin and mineral premix, often 0.25–0.5% of the diet
- Crystalline lysine and methionine
- Salt
- Any medication or additive

A few hundred grams in a one-tonne batch will not spread evenly on their own.

Step 1: Weigh accurately

Use a scale suited to the amount you are weighing. A platform scale for bags of grain is not accurate enough for 2.5 kg of premix. Use a smaller kitchen or bench scale for the small items.

Step 2: Pre-blend the small ingredients

Mix the premix, amino acids and salt with a carrier before they go into the main batch. A good carrier is ground grain or wheat bran, at about ten times the weight of the small ingredients. Mix the pre-blend thoroughly in a bucket or small drum.

Step 3: Follow a set order of addition

A common order is:

1. About half of the main grain
2. The pre-blend of small ingredients
3. Protein meals
4. The rest of the grain
5. Liquids such as oil or molasses, last, once dry ingredients are mixed

Putting the small ingredients in the middle of the batch, not on the bottom or top, helps them spread through the whole load.

Step 4: Mix for the right time

Mixing time depends on the mixer:

Mixer type	Typical mixing time after the last ingredient
Horizontal ribbon or paddle	about 3–5 minutes
Vertical screw	about 10–15 minutes
Hand mixing on a clean floor	turn the pile at least 3–4 times

These are general guides. Check the manufacturer's recommendation and do not overfill: a mixer loaded beyond its rated capacity will not mix properly. Over-long mixing can also cause separation.

Hand mixing

If you mix by hand on a concrete floor:

1. Spread the main grain in a flat layer.
2. Sprinkle the pre-blend evenly across it.
3. Add the protein meals.
4. Shovel the whole pile into a cone in a new spot, then repeat at least three or four times.

Always pre-blend premix before hand mixing.

Step 5: Reduce separation after mixing

A well-mixed batch can still separate during handling, especially if particles differ greatly in size or density. To reduce it:

- Grind grains to a similar particle size to the meals.
- Avoid dropping feed from a height into bins.
- Minimise transport and handling between mixer and feeder.
- Adding a small amount of oil can help fine particles stick.

Step 6: Check your mix

A simple uniformity test uses salt as a marker. Take ten samples from different parts of the batch and test each for salt using chloride test strips. The **coefficient of variation (CV)** of the results shows how even the mix is. A CV below about 10% is generally considered a good mix.

Clean between batches

If you mix medicated feed, run a flush batch of plain grain afterwards or clean the mixer thoroughly, to avoid carrying medication into feed for other animals.

Record keeping

Write down each batch: date, formula, ingredient batches and weights. If performance drops, you can trace back to the feed. For help checking a formula before you mix, use our formulation tool. If you mix for broilers, see how to mix your own broiler feed for ingredients, ratios and what a batch really costs.

Need a diet checked? Send your ingredients and targets to the FeedSport nutrition team on WhatsApp +263 77 468 4534 or sales@feedsport.co.zw.

Figures in this guide are typical values and general ranges. Confirm targets for your animals, genetics and ingredients, and check batch specifications before formulating.