FeedTechnoVision – Questions and answers
Session 4: Paul Koolen
Implications for high-temperature climate zones

Question	Answer
Which type of mixer is best: vertical or horizontal? What would be the required mixing time per ton of feed?	Horizontal mixer is better, better results obtained, within lesser time. (average 1-3 minutes depending on peddle mixer or ribbon mixer) when comparing that with vertical mixers, one need mixing times over 20-25minutes per batch.
Which type of corn can present actual energy of 3410 kca/kg? White or yellow?	White and yellow will both vary a lot in quality. Analysis values: 10-13% moisture, 3-4.5% crude fat, low fiber and ash. ME 3200-3400 kcal/kg (13.4 – 14.2 MJ/kg) Visual check on maize quality Organoleptic: 1. Should contain < 5% broken grains 2. Uniform kernel size and color 3. Almost no cob or other plant material present 4. No moulds Check on moisture: 1. Pick 10 grains at random 2. Crush each grain between the teeth 3. A reasonably dry grain will crush without leaving a pasty feel in the mouth
In our country, laboratory control and equipment is not available. How can we get access to a mycotoxin tester or other chemical tests like you have in your company? What do you advice?	Ask you local Trouw nutrition / Selko representative how to get you these products and services. Please let us know where you are located, then we can bring you in touch with our people.
Is insect meal a popular raw material for feed production?	As an alternative source of protein people are interested, we will see this more in the coming 2-4 years being implemented in feed production and diets.

We have an old plant that does not offer sampling possibility during the process. How important is it to invest in new, good sampling systems during production?	It is important to have a better interpretation on the predictability of the output that the plant will deliver. When the variability is getting smaller, the uniformity will be better, claims will be reduced.
Could you please explain water activity thresholds?	0.6 onwards moulds are getting to get growing. 0.7 yeast is starting to grow, 0.8 Gram negative bacteria starting to grow en 0.9 gram positive bacteria starting to grow. There is a correlation between activity of water and relative humidity.
What are the digitalization steps you are using for supporting feed mill savings?	Question for ernst neff, but I presume he will say; implement up to date digital scada system (main frame of the plant) make sure to apply good quality dosing equipment (accurate) when it comes to dosing liquid micro elements like feed additives.
Could you explain the correlation between PDI and pellet hardness?	PDI is the pellet durability index so how long does the pellet last in the feed-farm environment , before it will lose particles (fines), whereas the pellet hardness will tell something about the force kg/Newton it takes to break a pellet in 2. That force is important, as some young animal species can not chew or digest very hard pelleted particles.
Can PDI and low quality hardness be related to the operator as opposed to the raw material quality?	Yes it very much has to do with the conditioner process. Quality of the steam and in total how much water will be added to the feed, so that the compaction and elasticity (partly gelanatization of starch in the feed) in the die of the pelletizer will make a good coherence of the substance. So yes the operator has a huge role in achieving good quality. Hence when there are no wheat flour substances to fill up the tiny holes in the feed

	(to connect the course grinded particles) it is going to get more difficult to produce good quality feed (PDI), then sometime people choose to use pellet binders like lignosulphonate.
Is it possible to use liquid by-products instead of water in order to optimize moisture levels?	Interesting thought, I believe technologically not an issue. Hence the nutrition of the by product streams need to be well preserved so that yeast will not jeopardize the dry matter or CO2 in the feed. (apart from bacteria / mould overload)
Hardness is very variable among lab technicians, meaning human error. Can it be excluded from quality KPI's?	I believe it is all about a good SOP standard operating procedure that is maintained by all the laboratory personnel. In the end it is controlled and handled by humans.
What are common challenges you faced in Africa in terms of feed processing, raw material quality and feed mill operations? How is this different from Europe and Asia? Any quick tips on addressing possible challenges to reduce predictable impact on complete feed mill operation efficiencies?	Rubbish in is rubbish out. The main quality of the raw material is very much varying in the continent. Sometimes depending on import, or local production. Skilled and trained personnel how to create good quality feed or how to operate feed mills and farms is also one of the bottlenecks. And main differences between the contents, apart from the bigger key accounts off course in every area. They know their stuff and how to react to situations.
Are there possibilities and R&D going on to reduce or minimize Aflatoxin level in dairy compound cattle feed once it is out of the feed factory?	Yes but this also varies on a lot of circumstances, so better to measure on a consistent way using a mycomaster, so that you can act upon knowledge and not based on fear.