Mycotoxin Matters Episode #37

**SPEAKERS**

Dr. Ghazanfar Naseer, Nick Adams

**Nick Adams** 00:00

Hello, and welcome to this edition of the mycotoxin matters podcast where we are going to take a closer look at the dairy industry, with a particular view on Asia, and how the different aspects of the industry and the external factors that affect it, when we think about climate, and the importation of grains, have an impact on the mycotoxin profile that we face within the region. Joining me today to chat through this is Dr. Ghazanfar Naseer, who is Alltech's ruminant and mycotoxin technical manager for Southeast Asia. Ghaz, you're very welcome to the podcast.

**Ghazanfar Naseer** 00:50

Thank you so much for having me on this podcast. I think it's a very interesting topic. And it's the right time for us to discuss this because I know the customers are facing a lot of challenges, especially when we talk about the mycotoxin side.

**Nick Adams** 01:06

Well, then maybe Ghaz with that, why don't you start by giving us a little bit of an overview of the dairy industry in Asia, and how it’s structured and functions.

**Ghazanfar Naseer** 01:19

Yes sure, so dairy industry in Asia exhibits a very diverse and dynamic structure. We can broadly divide the industry in Asia into three key categories. The one could be very small sized farm, which are like backyard farming, the family-owned small farms like two animals, three animals, five animals, and then up the hierarchy there will be medium sized farms, which will adopt some up-to-date practices, latest research, and you know new technologies, they will adopt it. And then finally, we will have corporate size, big sized farms that will operate at a commercial level. And the key difference among all of these three areas will be the small sized farms are just doing their business for sustainability for sustaining their life or having some additional income from the backyard farming. But they play a key role because they are producing a lot of milk, a huge amount of milk that is coming into the market is produced by these small size farms. Whereas the medium size and large sized farms, they will be mainly supplying the milk production to other processes directly or they might have their own milk brand in different markets as different markets are a little bit different in terms of how the milk is processed and sold to the consumers. So, it's very key to understand this market structure before we think about how you know how we work with these customers and how these customers are actually adopting the new technologies and services to improve productivity. Small-sized farms are relying mainly for the you know, for keeping the farm alive or having that side income whereas the large size farms are more towards the profitability and making sure the production is as maximum as they can get it. So, these variables actually we need to keep in mind when we when we want to work with these customers because obviously, the dynamics are different. The requirements are different. The targets are different for each of these different sections of the industry.

**Nick Adams** 03:18

It's really interesting Ghaz to see the diversity across the region when it comes to the different sizes and types of producers. So, if you build on that, why are mycotoxins relevant to those different dairy producers across the region?

**Ghazanfar Naseer** 03:41

So yes, so mycotoxins are highly relevant for the dairy producers in Asia as it ties in with the several critical factors which are required for the dairy farming in the region. One is obviously the increasing milk production, the farmers are looking at improving the milk production, they are looking at improving the milk quality, so having mycotoxins in the feed can significantly impact the production as well as the milk quality. And then the fact that some mycotoxins can go into the milk and then effect on the human health side as well. So that plays a key role in giving the importance to the mycotoxin and trying to make sure that we manage the mycotoxins properly. Secondly, as you realise that Asia relies on the import of raw materials globally from different parts of the world. And because of these imported raw materials, the contamination that is coming through these imported raw materials plays a vital role here. Sometimes we don't find certain types of mycotoxins in Asia, but because we're importing raw materials from other countries. So basically, along with raw materials, we're importing some mycotoxins that are produced in those conditions in those environments. And lastly, I think the storage issue locally in Asia plays a key role in terms of mycotoxin increase level of mycotoxins and also the impact on the productivity of the animals. In Asia, most of the countries have high humidity and high temperature environment and that is best for moulds to grow. So that even further enhances the ability of moulds to increase the mycotoxin levels in the raw material. So, I think these factors combined together and you know how the customers understand the importance of these mycotoxins and how they're affecting on their animals, so they can better manage the mycotoxins.

**Nick Adams** 05:34

Ghaz interesting to hear more about some of those key factors and clearly, as yield increases, then stressors such as mycotoxins are going to play more of a role, potentially negatively impacting that, and then that mix of the imported challenge coming from all the grains that are coming into the region, along with that local challenge from the storage environment gives that Asian region quite a unique scenario, when it comes to mycotoxins. If you then look at climate, does the changing climate have an impact on top of the things you've just mentioned?

**Ghazanfar Naseer** 06:25

Absolutely, I mean, climate change is undeniably affecting the dairy industry in Asia. And it can intensify the mycotoxin related challenges along with the production challenges that we're having, because of the climate change, or the rising temperatures and changes in the precipitation backgrounds can create conditions that are you know, conducive to the mycotoxin producing moulds. Increased humidity and heat stress can also promote the mould growth, but at the same time, impact the productivity of the animals in itself as well. So, climate change is having a significant impact on the both sides, mycotoxins plus the productivity of the animals as well. Additionally, climate change patterns can impact the forage and grain production as well. So, droughts or excessive rainfall can also affect the crop yields and quality of the crops that can potentially lead to the higher mycotoxin levels in the field as well. So the climate change is not only standalone challenge, but also a factor that can further complicate the mycotoxin management in the daily farming at the same time, the productivity and the general stress factor that are coming up on the animals as well. So, it definitely is a big factor that is impacting on the animal productivity.

**Nick Adams** 07:37

As you're working with customers and looking at analysis across the region, Ghaz from the work that we are doing, what does the data tell us in terms of what the challenge looks like?

**Ghazanfar Naseer** 07:52

Yeah, so it's very interesting when we look at the data related to the mycotoxins and their relevance to the dairy industry, in Asia, we observed there are some notable trends that are happening. And there are noticeable shifts that are happening in terms of the mycotoxin profile of the raw materials, particularly over the last three years where we saw a bigger impact on the climate change and then impact on the crops and then consequently, impacting on the mycotoxin profile. And the data that we have from different surveys especially conducted by Alltech, it provides us crucial insights into the mycotoxin challenge and mycotoxin landscape of the raw materials. Firstly, according to, you know, Alltech's mycotoxin survey, which was conducted in past three years, we have witnessed significant changes in the prevalence and the levels as well as in the combination of mycotoxins that are occurring in the in the raw materials. And this shift can be, you know, attributed to the changes in the conditions and broader impact of the climate change as well. And these variations in the climate can influence the types and the quantities of the mycotoxins that are present in the feed, which can further emphasise the dynamic nature of this challenge of the climate change. And, moreover, when we look at some of the some of the trends, we saw a very alarming trend that has emerged from these surveys in a, you know, in a very consistent way that there is a consistent increase in the levels of emerging mycotoxins. In the latest survey that we did recently, we observed that emerging mycotoxins have not only risen to become the topmost commonly encountered mycotoxins in the feed samples tested in Asia, but this highlights the evolving nature of mycotoxins contaminating the dairy industry. This prevalence of these emerging mycotoxins introduces new challenges as we strive to understand the effects on the livestock health and the productivity. So, we need to a little bit better understand these emerging mycotoxins. But what we understand as of now from the data is that they are increasing in their levels and they are continuously increasing their presence in the number of samples is increasing as well. They are recurring more and more often in our raw materials. Another important one that we saw was evident in the presence of the multiple mycotoxins in the samples. From the latest survey that was done in the last eight, nine months, we saw that on an average, there were seven mycotoxins present in each sample. Most frequently, the topmost was emerging mycotoxin. And then following on to DON, fumonisin, and zearalenone was the most common mycotoxins, but, you know, more than 90% of the samples had multiple mycotoxin contamination. And when we, you know, look at that risk on the animals looking at this data, we saw that more than 40% of the samples had moderate to higher level risk for the dairy animals. So we need to, you know, look at all of these factors to make sure that how we are managing the mycotoxin and how we are managing the, you know, the challenge that our animals are facing. So, in short, like this data tells us the mycotoxin contamination is a multifaceted issue. It is influenced by the climate factors as well as the emergence of the novel mycotoxin classes. It underscores the critical, you know, need for the continuous monitoring adaptation and proactive measures within the dairy industry to effectively you know, address this challenge and, and address this challenge of mycotoxins.

**Nick Adams** 11:20

Yeah, certainly, that emerging mycotoxin piece is important, as well as the multiple mycotoxin piece because I think clearly what you're saying for Asia and what we're seeing in other parts of the world as well, is the prevalence of these groups that primarily come from the fusarium mould. And so, I think particularly in Asia when there's been such a focus historically on aflatoxin, for good reason, the importance however, of these other mycotoxins is right to raise because from that cow health and productivity standpoint, they're so key. Ghaz, you've put a lot of this information in your blog, which our listeners can find at knowmycotoxins.com. Maybe you could share with us as we wrap up just some of your top tips in terms of what you think and advise producers to be doing when it comes to this mycotoxin challenge.

**Ghazanfar Naseer** 12:30

For sure, there are so many things that we can do at the farm level at a feed mill level. But obviously, you know, there are a few things that play a vital role in making sure that we are managing that risk, we are making sure that our raw materials are have less contamination. So, I would say the first number one would be for me the quality of raw material sourcing. So, we ensure that feed ingredients especially the grains and the forages are sourced from reputable suppliers, who have strict quality control measures in place. This can help you minimise the risk of mycotoxin contaminated raw materials entering into your dairy entering into your feed. So we can we can have a good quality control checks at the start to make sure that as minimum mycotoxins enter in our system as possible, obviously, it's a very, very complex challenge any one supplier any one company any one, you know, part of the whole supply chain cannot tackle that. But and we cannot have it's very difficult to have like zero mycotoxins there is no concept of zero mycotoxins so we need to have strict quality control to make sure that as minimal mycotoxins we have in our system, and then leading on to that we need to have effective storage practices, implementing proper storage techniques to prevent the mycotoxin development prevent the mould development and further on to the reducing the mycotoxins development in our storage conditions. This could include maintaining optimal temperature or humidity using appropriate methods to making silage on the farms to make sure that our silage has a good quality and less mycotoxins in there. And then obviously, regularly inspecting the store feeds for any of signs of mould growth in there. So, we try to you know, minimise the mycotoxins coming into our system and then we try to make sure whatever is in our system does not go above the limits that we brought in. And then I think one of the key things here would be regular monitoring and testing. We can only have some targets set we can only reduce something when we know where we are today. If we don't know where we are today, we cannot set targets, we cannot reduce that. So, I think regular monitoring and testing and establishing a monitoring programme to regularly assess the feed and the forages it will be the key. And when you normally do that, you will have early detection that will allow you or give you the time to intervene and adjust any feed formulations, reduce some raw material, include some of the raw material that has less mycotoxin contamination, or like some raw materials might have higher levels of certain mycotoxins that are, your animals are less sensitive to so we might be able to intervene and make some changes over there. Now speaking of the regular monitoring and testing, I would have to, you know, share about one of the best tools that we have right now, for the dairy producers and for the females is the Alltech RAPIREAD system that comes along with the mycotoxin portal. This system offers a rapid and efficient solution for mycotoxin analysis, delivering the results in as little as 15 minutes. So, you can test six key mycotoxins within like 15 minutes time. But what the key thing that sets it apart from the industry is having the ability to put all of this information into a very nicely developed mycotoxin and portal. Now this portal not only provides quick analysis, but at the same time it gives us, or translates the data into actionable insights. It simplifies the complex task of interpreting that very complex mycotoxin data and it presents to the users or whoever is using that system in a very user-friendly format so we can easily understand what is happening in terms of mycotoxins what is happening in terms of the, you know, trends. So this portal will not only help us understand the level of mycotoxins, the trends, but also help us understand the risk which our animals are facing and you might be able to have some predictions that can help you understand how much you might be losing with this level of mycotoxins. So I think utilising these type of tools, these type of systems who gives you a better understanding of the information that you're already collecting can help you actually make quick actions, make right actions at the right time, so utilising this will be very helpful.

**Nick Adams** 17:01

Ghaz, fantastic. Thanks very much for all of your insights and sharing a lot of information about the industry in general, and the impact that mycotoxins may be playing now and in the future on that industry as it evolves. We look forward to having you back on Mycotoxin Matters in the future, to share with us more about how mycotoxins are affecting the Asian, ruminant and dairy industry.

**Ghazanfar Naseer** 17:34

Thank you so much. Thank you for having me today.