INTERVIEW TRANSCRIPT

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FARM LOCATION (NUTS3): UKH14 (Suffolk)

(First questions are based on the online survey we sent to UKIA members in December 2014)

Interviewers (I)

Grower (G)

I: If you could start giving a brief description about your business

The proportion that can be irrigated is about 95% and that would be the same for 2014.

I: What about the crops that you grow and whether they are rainfed or irrigated or both. And more or less the average yield?

G: Potatoes irrigated, both maincrop and earlies. All vegetables will be irrigated. Cereals are both rainfed and we do irrigate some. Sugar beet we don't grow any. There is a little bit of grass but that is rainfed. We don't grow any fruit of any kind.

In terms of average yield…potatoes is a bit misleading because within the potatoes we have baby potatoes as well as maincrop bakers, so I don't know how…

I: Well, you can give me a range

G: So maincrop potatoes, average yield for those would be in the region of 65 t/ha and for the babies about 41 t/ha. Vegetables we need to split them out to the 3 different vegetables. So onions would average about 52 t/ha and that is green weight so fresh weight of the field. Carrots would average about 100 t/ha and parsnips about 50 t/ha. Cereals across the board would probably be somewhere around 7.5 t/ha.

I: Where do you get the water from?

G: Surface water is about 5% and then the remaining 95% is all groundwater. So we don't use any public mains, we don't collect any rain water and we don't reuse any.

I: Do you have an all-year abstraction licence or..?

G: We have a whole multitude of licence. We have one that have a winter and summer element to it. And then the other licenses have been combined into a single license which is, I guess, what you call a summer license but it runs from the 1st of April to the end of December, but I guess you call it summer license.

I: Do you have these licenses from the very beginning or is something that you have been trying to improve…so you have decided to get more licenses to be more resilient?

G: Those little licenses are quite historic so they would be at least 25 years old or 30, but maybe a little bit more. There is been no new licenses since I've been here which is nearly 23 years now, so there is nothing new recently

I: What about the irrigation methods that you use?

G: In terms of area…There is no real static sprinklers. Hose reels with guns probably be about 20%, hose reels with booms probably about 35% and linears would be 45%. And there is no drip or trickle.

I: When you have to irrigate, when do you decide when is the right time to start?

G: It is a multitude of things. So we run two different types of soil moisture measuring devices, so we run neutron probes as well as capacitance probes. We also have a weather station that gives me predicted transpiration rates. The probes also calculated recent transpiration as well. We would look at in-field assessment so I will go and feel the soil on a twice weekly basis on critical crops. We do a bit of water balance calculation but this is based on what the probes are telling us in terms of transpiration over the last few days. So that is used to decide the trigger points on when to start.

I: And can you give me a percentage of the relative importance of each of them?

G: The probes and the in-field assessments are the most important, and then transpiration rates from weather station are sort of in second place. Water balance will be third. We are constantly trying to look at ways of refining this scheduling so having better measuring tools and factoring in size of canopy, so depth of canopy as well as ground cover. But currently technology isn't really there to let us do that but it is something we are looking at.

I: Now talking about the final destination of your products…

G: Potatoes will be processing, supermarkets and we do a bit of food services so I guess that would be "other", wouldn't it? Early potatoes would be supermarket and "other". Vegetables are processing and supermarket. Cereals would be pretty much all processing because there will be something else done to them

I: And with the grass do you do anything?

G: The grass is grazed generally. We don't use it for silage. It just tends to be grazed, seasonally grazed.

I: Now let's start talking about the historic droughts that have affected the UK. From the memories that you have of previous droughts, if you can tell me more or less the level of impact that each of those had on your production?

G: My knowledge would be better for the most recent droughts. Going back, some of these are going to be anecdotal. So 1976 was high, 1988-92 was high, 1995-97 I think was high but it is just before my time here. 2003 I reckon we ought to put that in the high bracket, same with 2004-2006. 2010-12 was very serious, certainly 2010-11. The cereal crop was very seriously impacted; to the extent of we probably lost 75-80% of the yield on the lighter soils. Vegetables crops would have been impacted less, so it would be more sort of medium because we would have the water there to be able to supply the extra demand. Since we have been grown vegetables effectively on a big serious scale only covers the 2003-2006 and the 2010-12 droughts. Because of the license and the way we used it we had the water there to help the vegetables get through the tricky times. If we couldn't have it or if it was massively reduced, then the impact would have been very serious.

The other thing that I wanted to bring up is really the definition of a drought. Because you talk about droughts and that is what triggers people thoughts about it has been a tough season and you needed the water. But for us last year we had a 3 months drought, which came effectively middle of April, May, June and right until the first couple of days of July, when we had less than half the average rainfall. And to me that is a serious drought, because we had to pump a massive amount of extra irrigation water in that period and run out towards the end of the season. So last year had a really big impact on yields, particularly of parsnips because we kind of sacrifice them. So we probably lost 25-30% of yield of our parsnips last year. Over the 12 months the water was imbalanced more or less. And for me that is a key point that needs to be there somewhere. For groundwater levels is OK to look at recharge and things, but actually in terms of defining drought periods we need to just qualify what we mean for drought period and what are we using the drought period for. It is for aquifers recharge or it is for crop demand…

I: Yes, you are totally right. Even in academia there is not an universal definition of drought

G: Exactly. That is what worries me with the EA in terms of provision of water for arable crops in a drought period, if they don't recognize it as a drought period, then they might not give extra priority to irrigation and crops, whereas actually in reality the availability of water in the growing season is so critical that if it runs short of rainfall that would be a short term drought. And we need to pull that out somehow.

I: Yes, I have been talking to other farmers for this study and some of them said that in the critical period when they have to irrigate, if there is not rainfall for 3 or 4 weeks that is a real problem for them so…

G: Absolutely.

I: Now talking about prices, for the 2010-12 drought can you tell me if you remember any impact on prices?

G: The problem is, with a lot of our prices, they are contracted rather than free market price. That is to try and take some of the risk out of free market prices, but what it means is if you get an uplifting in prices because there is a shortage of supply, there would be only a tiny proportion of your crop that would benefit. There

is not the supply and demand price compensation. You can't apply that to all your crop because it doesn't happen. It terms of the element of our crops that are non-contractually priced, maincrop potatoes we would have probably 20% that is non-contractually priced. So in the most recent one that price would have gone up probably by more than10%. Early potatoes I would say the same. Vegetables would have been short of local slight increase, so around that 5% but a very large proportion are contractually priced so we wouldn't have a benefit. Cereals, would have been a high increase, more than 10%. And the rest are not relevant.

I: So you said that most of your production is for contracts with supermarkets or processors…

G: Yes, it is fixed price. Most of it will be with a processor or a packer going to a supermarket. The packers have less appetite for volatile prices. And, you know, we cannot run a large business based on not knowing what price we are going to achieve. Because, of course, if we need to invest to go forward we need to be able to put lines into budget when we have got no returns. And I guess most large businesses will be the same in that more and more of their production is on fixed price contracts rather than free market prices subject to the supply and demand.

I: During previous droughts, have you had any problems when delivering the agreed yield or quality to supermarkets or processors?

G: We generally have been OK because we have good relationships with our customers. We are able to absorb single year short of supply volume. But what is clear is that it is not a sustainable approach. They are not going to let us do that every year going forward or every other year going forward. If it is an uncommon event we can kind of absorb it, but what we have to do is, probably in the next year, we just modify slightly what we have budgeted in terms of area vs. contract volume

I: So after a drought you will change a bit the way you…

G: Yes… The problem is to grow headroom is very expensive. In a year of short supply then it covers you because it covers your volume off. But in the years where there is good supply that product is wasted. So therefore your return across the whole lot goes down. So we try not to grow any headroom, we try to be as closed as we can to what they want. But what that does mean is that if you get a drought episode that impacts yield, all of a sudden you are instantly under what you should be supplying. And that is a very careful conversation to manage.

I: In those years that farmers are affected by drought, how do you see how this is going to impact the rest of the food supply chain? And what actions do they apply to protect themselves? So, for instance, if supermarkets don't get all the production that they have contracted, what do they do normally in those cases?

G: I don't know…My perception is that, in those cases, they will buy more free market material. So they will go outside of their normal grower base and try to secure product within the UK and if it is not available in the UK they will import it. What we have to be very careful of is to be consistent as producers because if you

start to become inconsistent you will start to loose contracted volume into your costumer, see you as an unreliable supplier. And that is the problem with water availability and drought management, is that anything that affects our consistency of supply goes against us commercially not just from a single year yield point of view but in terms of medium and long-term plan where we sit in our customers food supply chain.

I: Now, we are going to talk about how droughts are managed by the EA and the help that you receive from other bodies. Have you experienced any abstraction restrictions during recent droughts?

G: The only one we have experienced…because we are groundwater and surface water, we are a little bit further back from short of immediate issues. But where we were part of the offer of voluntary restriction in 2012-13 with the EA locally as part of the WAG. So there was a voluntary offer to restrict our abstracted volume to 85% of license. So we were part of that but in the end the weather broke at it rained for nearly all year… so it wasn't actually restricted. That is the only restriction we had, but obviously when they are facing restrictions from 2008 and going forward because they are after claiming back some of the licensed water.

I: What do you think about S57? Because I know this is quite controversial among the farming community.

G: Probably because of where we sit in terms of the groundwater is a little bit further off of our radar than a surface water abstractor. In terms of how restrictions come in I am not in the sharp end of understanding how much notice you get and the triggers for it. I think the general view is that it is extremely unfair that we are the only sector that has that and hopefully there are looking into removing that in the abstraction reform, but I suspect there will just be some kind of priority hidden by another mechanism. It would effectively be some kind of priority ranking system for shares of water going forward and we all will be just further down the list. Effectively they will be putting that kind of restriction in but actually without being open about it…it will just come quietly by another route.

I: When there is not enough rainfall and you know a drought is coming, what kind of information do you use?

G: Logging groundwater levels. We have data loggers that can give us real time information on the state of the aquifer. We have an idea where recharge comes to. We have quite a lot of data of recharges at a certain point by a certain time. Then, we should be OK of water supply for the growing season.

We do carry licensed water through from one year to the next in reservoirs. That gives us access to more than 100% of our license in any one year. So we can carry ahead water through all the time for the years we need more water than our license will supply. And then we will slowly recapture than during the wet years to get them back to full point again. So we are kind of managing a buffer of water, just to lessen the impact of increased irrigation in certain years.

I: What is your feeling or opinion about how governmental bodies or farmers associations help farmers during a drought and if there is something that could be improved?

G: In terms of the way things are heading in terms of catchment based approaches and catchment management, as abstractors groups is the right way to go. I think there need to be a scale of plans. At least discuss so everybody knows…you know, when you get to a trigger point in terms of drought…At the moment a lot of the abstraction reform is not looking at drought management apart from you cannot have the water. So, to me really, there should be some kind of decision making group or board that has the issues come across from the EA. You know, what is the issue in the catchment for the next few months, or in a year ahead if you like. So what are the short-term issues, the medium term…they might be water availability, water quality, etc. And it is then to that decision making board to understand the implications and how the tackle the different elements and then to cascade that down. So in terms of looking at a catchment, the first thing is the rainfall and abstraction now over a 12 month period and how is that balanced. And if, as in our catchment, it balances but we lose all our water out, well actually that board should be empowered to look at all kind of options for transfer of water within a catchment or from out the catchment, and storage within the catchment. And there should be an ease of planning and grant applications in terms of building storage units. So, that group can actually say: OK, we are losing far too much water out to sea. We need to capture it just before it goes out to the sea or capture it further in the system during wetter periods and storage it for use particularly as back-up use for agriculture. Because what they don't seem to grasp is that… and I guess there is a need to be a broader drive to push newly developments and things out of water stressed catchments. So to make it very difficult to new developments within them. Because you can move water about, you can move food about, but you cannot move land about. So you can move businesses but it is the land that produces the food but we can't move it. So simplistically our business cannot move to a different catchment. House and development can move to a different catchment. That is all doable, whereas moving land isn't so the water for the land has to have a very high priority and a high level of security. Obviously, if there is no water in the river system because it is dry that is more difficult. Maybe there should be some kind of river support for abstraction from groundwater. But the whole groundwater needs a lot more study and understanding to understand the impact of abstraction point in relation to distance from river flows, etc. So we need to recognize there is a problem but I think solutions need to be discussed. And trigger points are great so you know if it is a small drought, therefore the position is this, and if it is a major drought then the position is this. The problem is if we don't have water for our crops here we will import then from somewhere else and we are just moving somebody else's problem around…

I: In question 15 you have a list of strategies that you can apply when there is a drought. If you can tell me which of those do you normally use or if you apply any other management actions?

G: Irrigate a reduced area to the full irrigation schedule will be in the Top 2. And if it is an in-season drought then, short-term it would be to flag up our costumers so

probably…no, probably work with local abstractors group and negotiate with EA. The rest are more long-term strategies, some of them, so if there is a second year drought or a third year, it would then be to renegotiate with contractors and evaluate what water we have got and look for informal water trade, that kind of thing although it is difficult

I: Have you ever participated in water trading?

G: No, the mechanism for it is quite difficult for us in our catchment because of the groundwater. I am not sure how we would…There are only a few abstractors in our water body. So I guess it would be a case of whether we could trade something with them. But if we are in that kind of level of drought, they are unlikely to want to free any water out…

I: Yes, I know it is quite difficult…

G: As we are not surface water we cannot transfer water around in any way so…

I: After the last drought episode, have you made any change to become more resilient to drought in the future?

G: We are looking at crop types, but I suppose they are not really resistant to droughts but the impact that a drought has on volume and quality. You know, do we grow less demanding quality crops so we can absorb a bit of drought? But the problem with this is instantly a lower return whether you get the quality or not. I guess in terms of developing a drought business plan is really based around the evaluation of even more water storage, and whether license changes will let us to abstract water at different times of the year to increase the amount we can get. Or we put even more buffer storage and hope for a run of wet years when we can fill in the extra buffer storage.

I: Can you tell me a bit more about your storage system and how do you use it?

G: So we stored above ground about 25% of our annual license volume can be stored and carry through into the next year. So in a single year we will have effectively 125% of license, but obviously if we use the 125% then we will not have head of water to carry forward. So what this lets us do is…because the difficult thing is to know what the water demand for the different crops is going to be. Some crops want it in April, some in May, some in June, some in July and some in August-September. So, without knowing what the season is gonna do it is quite difficult to manage water to an optimum level where we can get the maximum benefit from it. Because if it is dry in April and May and we use too much too early, we might not have enough for the crops at the back end of the season. And alternatively if I save some for the back end of the season and it is wet, then I could have used it upfront. So by having the buffer storage unit what it lets us do is buffer that decision. So if it is dry in the spring I can use a little bit more but I know I am probably an inch into my buffer. That is a decision we make on an in-season basis.

I: After being affected by several droughts, would you say that your attitude towards drought risk has evolved over time?

G: Yes. I think you are constantly developing your thoughts as to how are you going to deal…Because we don't carry a lot of headroom in our license, our business approach is, and has been for a number of years, to maximize our water usage. So if we do get a drought, without our storage units, we would be very quickly making decisions about the best return for it, so what crops do we need to keep going for a quality and return point of view; and what crops might be able to suffer a week or two of drought but then come back and regain a bit more yield if it comes wet. But we get to a situation when we know our lower value crops, or looking it on a return basis, our lower value crops are the ones we will always get the water away from first.

I: Now, talking in more general terms, what are the drought management aspects that should be changed to reduce the impacts of future droughts in the UK agricultural sector?

G: I think the most important thing is that farming sector has to have a weighty voice in allocation and decision making based around water availability. I think it must have equal voice with public supply and that voice needs to be louder than the need of the ecology. We do see that ecology is resilient and will recover with a short-term drought issue. But from a crop production point of view there is no tolerance to short-term drought. If you cannot put water on, the zero tolerance… there is an instant impact. So I think the most important thing is that food has a recognized higher value to the global economy and as such the producers need to have a more weighty voice.

The S57 issue… I think the abstraction reform will sort that out, but it needs to go away. The important thing is this prioritization of food production. So in the new system hopefully put us higher up…these guys go first sort of thing.

Water trading is an interesting one. The obvious thing is, the logical solution is to move water around from catchment to catchment. Initially, I suspect expensive but in the medium or long-term it would more than pay for itself because it is just crazy, exhausting, good water to waste effectively during the winter when we could be moving it and storing it and improving the business security. So for me that is high on my wish list if you have a magic wand that is a must consider.

I: Do you think drought management in the UK has evolved over time in a positive way?

G: No. I think they are evolving in mechanisms that don't deal with what the issue is. Obviously, there is too much emphasis put on trading as being a solution to water shortage. Now, what we are seeing obviously in terms of pulling back licensed volumes under the WFD, that means there is less licensed volume water available to trade. So when it comes short, who is going to have a surplus of water to solve somebody else drought issue. So it is OK as a mechanism, I don't think as a solution it has any […] because I cannot see where your magic water…if there is a demand to trade water it means somebody doesn't need it and if everybody's

headroom is disappearing what business change is gonna happen? The only way that there will be water available for trading is if for example your next door neighbour reduces or goes out of business but keeps his license and trades you the water. But outside of that I cannot see an scenarios where trading is an answer to anything, unless within other sectors like public water companies are allowed to carry a massive headroom through and the fact that it is a very small percentage it doesn't have a massive impact on their headroom because there business are million times larger than ours. So that is maybe an option.

I: From 0 to 10, how would you rate drought risk for your business?

G: I would put it as a 10

I: Do you think droughts and water scarcity are going to become a more frequent problem in the future in the UK

G: Yes, highly likely

I: So, what things are you thinking of doing to become more resilient in the future? You mentioned storage…

G: Yes, I think more storage. Trying to look at the opportunities within the new licenses to access to water at different times of the year so when it is more readily available. I think it is something we have to explore. We are constantly exploring the efficiency of application. That is something we are always working on. We are constantly exploring the efficiency of scheduling. So actually how far can we push the boundaries without having a non-recoverable impact on crop quality. But I think a lot of those are very small wins, and there is only a small proportion of water that is being abstracted so if the farming sector increases its efficiency by 50% which it is not gonna do, but if it did then the impact on total water abstraction would be about 0.5%. The big impacts are gonna come from the big users, you know, how do they cope with their usage. If they improve their efficiency by 10% it is a massive win for the catchment whereas we can spend a lot of time…it is right that we still do it, but the impact on the catchment is not going to be big, so the pressure on us will still be the same…

I: Yes, it is true. If urban water supply is the main water user, if they do something they impact…

G: The other thing we are exploring is whether we could use wastewater. There are three things there: is it practically possible? The next one is does the cost pay for the infrastructure to try to do it? And the third one is do our costumers crop protocol allow us to use wastewater and what sort of standard is there? And we need all of those to be in alignment for that to be an option. So the discussion has to be across all sectors of the supply so we need our customers sitting at that table as well to have those conversations. At the moment I think our customers are just sticking their heads in the sand…I would say we are not having any help from our customers for solving this kind of problems.