

1 **INTERVIEW TRANSCRIPT**

2 INTERVIEWERS: Dolores Rey (Cranfield University)

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4 FARM LOCATION (NUTS3): UKH13 (Norfolk)

5 ***Interviewers (I)***

6 *Grower (G)*

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8 **I: Could you tell me a little bit about your farming career?**

9 G: Apart from farming, I have two consultancy businesses.

10 **I: Is your farm 100% groundwater?**

11 G: No. It gets the impression around here that water shortage is not...Yesterday I
12 was with a farmer and we were applying for brand new licences for groundwater.
13 You know, it is available if you know where to look for it. Most of the new systems
14 are large Estates putting bigger reservoirs in. I probably got 10 being planned at the
15 moment. We just finished the last one under the rural development grant, a big
16 reservoir connected to boreholes as well, and it was for half a million cubic meters.
17 Now we are working with the next door Estate with 800,000 cubic meters of rights.
18 These are big projects, moving water from quite a long way and looking more from a
19 catchment point of view rather than individual farm point of view.

20 **I: So the idea is to manage water in a more collective way?**

21 G: Yes, we have tried to move away from summer water straight out to the river.
22 The chalk catchment doesn't really have a problem...I mean, the environmentalist
23 get worried if it goes down half a meter. To me, I am not worried about that, if it
24 goes down 10 meter I will be worried. You know, people think the world is gonna
25 end if it goes down a meter...You are looking at a borehole, probably has 50 meters
26 of water in it, and it goes down to 49.9 they go like...It is people perception of what
27 is going on.

28 To me a drought is when I go outside and have to shoot all my sheep because we
29 don't have enough water. We never get to that point. We just have periods when
30 you don't get very much rain. And what happen if you have certain areas of
31 agriculture where you have very light sandy soils, which if you go back 30 years ago
32 before they got irrigation, there were no irrigated crops on that land. You would have
33 a rotation of grass and maybe sugar beet and cereals, and then grass again
34 because they naturally couldn't hold on to a good arable rotation. Finances have
35 shifted to arable farming. Since to get into arable farming you need rotation, and for
36 a rotation you need irrigated crops in it. So we are in a position that we are trying to
37 justify some pretty unsustainable farming systems. It is like: we need the water!!...It
38 is all about the quality of that crop. That is the bit I think we have a major problem
39 with this, because they use far too much water for the output you are getting. Our

40 big threat here is environmental protection; it is not actually the quantity of water
41 available for us. There is quite a big threat of houses, there are 38,000 new houses
42 going in in this area. That has quite a big effect on farmers in the area. I actually
43 think irrigation is going to stop here.

44 **I: Some farmers told me exactly the same, that because of new houses, at the**
45 **end you are going to get less water to your business**

46 G: It has an effect on the aquifer recharge. Where we are seeing houses being
47 built... It is about a third wood and a third of arable land, and it is all starting to dry
48 out. So the Government changed the rules on planning permission. If there is a new
49 housing Estate, it has to have permeable membranes, so all the new houses
50 Estates have permeable membranes so they shouldn't have the bigger effect on
51 aquifer recharge that they would do. I don't know...It is all about flooding. I think
52 they need to have a harder view with new planning resources... So yes, at the end
53 of the day every new house that is built means 100 litres a day that we haven't got
54 to irrigate crops. These catchments around here, you cannot get winter reservoir
55 water, it is gone, it is been allocated...Well, you can get it, but it is such an
56 unreliable licence that you might not even get the water 6 years in 10...And the 4
57 years you don't get it, the 4 years you want it.

58 **I: I have seen that your business was impacted by the 1988-1992**
59 **drought...But well, if you can tell me what you remember about the first**
60 **drought episodes you were impacted by?**

61 G: Well, about 2003 we changed the way we irrigate, from just irrigating potatoes,
62 we cut the area of potatoes in half and start growing salads and organic salads. So
63 it has been a change in the cropping since then.

64 **I: And that was because you were afraid of not having enough water or just a**
65 **business strategy?**

66 G: We cannot grow salads without water so...

67 **I: Let's talk about the drought in 2010-2012. Can you tell me what do you**
68 **remember about the information you were getting, when did you know you**
69 **were in trouble, the things you did to manage it...?**

70 G: This area was not affected in 2012. So it didn't really have much effect...What
71 happens was I got calls from the EA and...I don't know how to put this...When the
72 drought happens, it is not a shock. There have been conversations going on
73 probably a year before that.

74 **I: Yes, so it is not a surprise**

75 G: Yes, you don't get a call like "it is dry, you cannot have any water". You can
76 make business decisions along that way, and certain sources of water will be more
77 at risk, because historically you know that. So, some people have licences that on
78 the 31st of March they get a letter from the EA giving them an indication of what is
79 the likelihood that they can irrigate that summer. So if S57 is imminent, they would
80 know...If S57 came in in July, they would know in March that it was likely to happen

81 because of river flows and things. They would also be getting information from the
82 EA well prior to the 31st of March, plus we get charts and other things coming from
83 the EA. So it shouldn't be a surprise to anyone who has planted a load of potatoes
84 that suddenly they don't have any water. But those people who have this problem
85 constantly have move into reservoirs. Those relying on groundwater probably
86 haven't because there is no S57 on groundwater sources. So the reason of building
87 a reservoir it is all related to the risk of your business.

88 The big change in the last 10 years is hardly anyone now earn certain crops, there
89 is the specialist company. So your risk as a farmer is very much reduced. You
90 become a landowner and your business is all about how to make more money out
91 of each acre. And for most people hiring the land, selling the water is more
92 profitable. But someone has to supply the supermarkets...So you get very
93 specialized companies that can stand out to the supermarkets at a huge scale. Lots
94 of salads are grown in Spain, Hungary, Poland...and there is also a little niche of
95 market depending on what time of the year. Our niche market is right into the
96 season October-November before we get frost and then they will go down to Spain.
97 So that is really where we fit into all this.

98 So if you have the right field, stone-free, light land, level land, and you got the right
99 rotation to give these people what they want, they will pay good money for it. And
100 that money is better than the crop itself. So we don't have to worry, our financial risk
101 management is good. If I own these crops and I haven't got a contract for this, it is
102 complete risk until you get to the market place. And then you might do quite well or
103 you might not. So who is gonna take that risk?

104 We are better off not growing potatoes in our own account and we ever were
105 growing ourselves... It sounds madness but this is where the market is moving
106 towards because farmers are just fed-up of taking the risk. So you get specialized
107 companies that are able to cope with the financial risk, they have owners but the
108 financial risk is not attached to the farming business. It is a stand-alone business
109 that has a lot of machines, employs lots of people. And sometimes they are in the
110 right market and they got good long-term prospects and sometimes they haven't. So
111 that is probably a far biggest driver. The drivers are coming back from the factories.
112 So companies which operates around here will come to certain farmers and say
113 them: If you want to carry on growing potatoes for us, you gotta get the quality right.
114 So you invest in...because they are telling to the landowner that they not want to
115 grow potatoes on his land because they can achieve my quality. So then he has a
116 bit of a problem.

117 That is really where the financial background is, that is who would actually build the
118 reservoir? I am having conversations with several Estates at the moment about
119 whether they should be putting reservoirs in. And there is no benefit, because at
120 some point you have to go and get a grant and prove the business case. There is
121 not benefit for an Estate to go and put a reservoir in. But there are the water people
122 that are the people owing the land, and they have been thinking about this for a very
123 long time...

124

125 **I: Yes, but it is quite expensive...**

126 G: You are talking about 3 quarter million pounds to put one in, and then you are
127 worried about the financial returns on it. But it also has some knockoff effects on
128 inheritance taxes and those sort of things, that we are hoping the Government will
129 resolve. But for the person growing potatoes, his easiest option is to go to a farm
130 and say: OK, what do you want? Rather than solve the problem on the farm.

131 **I: Do you think that S57 is quite transparent in the way it is applied? So you
132 know the triggers, how the EA takes its decisions...**

133 G: If we are having S57 in certain areas, the guys on there have all changed their
134 potatoes, so they now grow small potatoes early in the season, so they are pretty
135 sure they can irrigate those. So when I get a phone call from the EA saying that S57
136 is coming, and we are gonna cut doing every other day or 12 hours a day or
137 whatever it is going to be, I ring the growers and say: Sorry, are we finished?

138 So they have changed their cropping because they know they would regularly get
139 S57. The problem I have now is that they have moved to other crops like carrots
140 that need water later on. They will be growing big areas of carrots, they might be
141 able to irrigate 50 acres but they probably will only irrigate 30 because they know if
142 the get a S57 and get cut down at 50% they still can do the job properly...

143 What is happening, which is more of a risk now, is that the EA groundwater model is
144 trying to link groundwater supply to river flows. It is saying that the river flow
145 because the water is coming from the chalk aquifers, because they are connected.
146 And the implication for that is currently you can have a S57 on groundwater licence
147 if it is connected to the river flow. But where my own farm is, the rivers don't flow
148 very quickly... sometimes they got backwards and you can see the sea level goes
149 up...The assessments in those two rivers are not done on river flows, it is more to
150 do with environmental protection, and environmental protection is all to do with how
151 much rainfall you have recently. It has nothing to do with abstractions but the link is
152 trying to be made and we are arguing that this link shouldn't be made, which is what
153 licence renewal is all about.

154 So, to answer your question, are people changing their practices? Yes, they are.
155 You got the person who hasn't got water is building a reservoir cause that is the
156 only source, the guy I went to see yesterday was putting a borehole in. But the
157 biggest threat is to the people who have got irrigation who might have one or two
158 sources to ask them to...actually we want you to put one reservoir in as well. It is
159 almost a double the capital commitment to solve a problem that you cannot really
160 see, that probably is not there. So there is this problem.

161 I have got one Estate which has 45,000 m³ reservoir and it has got problems and
162 actually it only got 30,000 out of it. And he ought to have more water, he grows a lot
163 more crops that can irrigate and things like that. But from the Estates point of view...
164 I got water, I maybe don't have enough but I can still...So it is a problem maybe 1
165 year out of 10 so why I am going to invest ¼ million pounds in a reservoir? There is
166 no payback on the project. So the problem is actually for those who have a little bit
167 of irrigation, building resilience on their businesses. I can think of a grower who has

168 reservoir and 2 boreholes and he wanted to put a second reservoir in and he didn't
169 get a grant because it wasn't a business case there for it. And to be fair, there
170 wasn't because they only have so rarely...he can see it from his business that it was
171 affecting the herbs but to actually prove that and get a return year on year in
172 something that probably happens 1 every 10 years. Defra just had a look and say: -
173 - We are not going to give you a grant.

174 - Well, but it is building resilience into his business.

175 - Yeah well, we are not interested in that

176 So there are major problems coming down from Government that nor really fit what
177 farmers want to do. Because one of the criteria on the grants is putting irrigation on
178 land that wasn't previously irrigated, ultimately that wasn't irrigated properly.

179 **I: Yes, that is a big problem...Now, if you have contracts with supermarkets or**
180 **processors for your crops, and then there is a drought, how can you manage**
181 **to negotiate with them if you didn't meet the expected yield or quality? And**
182 **how do you think the drought in the fields is affecting the rest of the food**
183 **supply chain?**

184 G: On the whole, if there is a drought and you are supplying a factory the quality
185 standards will come down, because they know it perfectly well. But as a business
186 they will try to buy the best that is there. So you, as an abstractor, will irrigate some
187 of your crops reasonable well and some not that well. But if you grow 20 tonnes per
188 acre, you are not gonna contract 20, you are gonna contract 15 or 16. So you got
189 that 4 tonnes/acre to play with. It is when you get 12 tonnes/acre or even less to sell
190 when you have real problems. And those people really have problems. But when
191 you look at the problem, they shouldn't have started off growing the crop because
192 they knew that on their light land they didn't have the capacity to irrigate and
193 therefore they assume they were gonna grow 15-16 tonnes/acre and only get 10 of
194 something.

195 It is not different from a carrot grower who bags carrots up and if you get everything
196 right, you get the right land, you have been growing carrots for years, and you
197 irrigate you will get proper yield: 25-30 tonnes/acre in plastic bags. But if you get
198 irrigated crops on perhaps not the right quality land, too dry or too wet, you might
199 get 2 tonnes/acre in plastic bags. And you know you have lost a lot of money. It all
200 comes down to the management and picking the right land to grow a particular crop.
201 I don't have a lot of sympathy for people who have gone to a high light land and
202 expect to get 16 tonnes/acre, but when you look back you think why did you make
203 that decision?

204 **I: You have to be realistic...**

205 G: Yes. So if you have a bit of good land that only needs 2-3 inches of water, you
206 probably can guarantee that you are going to sell 18 tonnes/acre without irrigation,
207 and irrigation can get you up to 20-22. But if you got a light bit of land, you can only
208 really guarantee 10-12 tonnes/acre. So if you are getting 15,000 when it cost you
209 20,000 pounds crops to grow that crop...why did you start it? I really question why

210 they did that. The reason they do this is because they have a self-propel harvester
211 that has got to put 600 acres through and they are desperate to get acres through,
212 otherwise the whole lot costs more... So the problems aren't abstraction problems,
213 they are farm management problems.

214 **I: Yes, could be... Now, talking about drought management strategies on the**
215 **fields, among all the available strategies, how is the decision process?**
216 **Maybe, if you see that is going to be a dry year, you start changing some**
217 **crops, the irrigation schedule... So how is your mind starting to think, OK I will**
218 **start doing this and then if the problem becomes bigger... How is this decision**
219 **problem in the farm?**

220 G: On my own farm I never had problems with the quantity of water, never had a
221 S57. So that wouldn't come into... But in 2012 we were writing to farmers and
222 saying: Look, you are going to be short of water. And then of course it rained, didn't
223 it? But we were telling them to cut down on the acres... if they can move the
224 potatoes to areas that get more guaranteed source of water. If they can't do that,
225 then really consider to cut back the acres because it is going to be a very bad year.
226 And it turned out to be a fantastic year for potatoes because it rained all the time so
227 we didn't use any water. But we were having reservoirs we couldn't fill up. So the
228 source that you really do bank on the reservoirs, we can't use because most of the
229 reservoirs didn't start filling until the beginning of February, middle... about now. So
230 a lot of them we wrote to the EA: can we carry on filling them into April?

231 Eventually we got more filled up, but it was up well into the summer before we could
232 do it. We learnt a lot about what we were supposed to be doing and how to licence
233 the water and have variable abstraction rights linked to river flows... And all the stuff
234 that is coming out in the licencing reform were starting to be put in place. We started
235 to have a real [...] about what were we going with this, and we have very clever
236 systems in place now.

237 One big Estate, 8,000 acres, we can move the potatoes around to where we have
238 water, but some other farm Estates, around 1,000 acres we cannot irrigate. So we
239 just moved the potatoes out to that area, grew a few less but on areas where we
240 had the water. Because the areas that we had the water were the areas where we
241 had worm problems. So we didn't really want to grow in there but we were so force
242 into it because that was where we had the water. So it comes out, what is the
243 biggest risk, not having enough water or the worm problem that we can treat?
244 Those fields will come around potatoes again about 5 years time. So we planned
245 not to grow in there but then we were forced to grow there. I also can remember
246 most people extending their rotation from potatoes from about 1 year in 5 to 1 year
247 in 8-10, and that was all about the threat of not having worm control. So those that
248 started to do it 10 years ago and worm control is no longer an issue, but there are
249 still some farms that fairly near to irrigation with quite tight rotation ... Actually, we
250 need to hire a lot more land here, so they are looking at their neighbours ... but the
251 neighbours probably have different potatoes for farming. It is all getting quite
252 competitive. But there are ways to do it.

253 In 2012 we got phone calls from people in Cambridge that would take any potato
254 land around here because they knew they have the water. So water became the
255 critical thing that year, too much down the line when it rains, it doesn't matter at all.

256 **I: Do you think irrigate at night could be a good strategy during drought and**
257 **how it can be implemented in the field?**

258 G: It is definitely...Well, water coming out from boreholes is very cold, so you can
259 find on certain crops like salads that the crop grows two days after you irrigated it.
260 Potatoes you can find they stop growing...But if you put it on at night you get less
261 evapotranspiration. The night time in summer is nearly 6 hours, it is not as long as
262 you would expect. Your pumping licence is all about, let's say, 12-15 hundred cubic
263 meters a day, but you are limited to how much water you can pump per hour or per
264 second. So if you only pump at night time, you will end up pumping for quarter the
265 time, which is...So the financial incentive is to put it on all the time rather than trying
266 to be very efficient. What you might do is to stretch it to every 10 days, because
267 certainly on some of the pre-packs, the ones sold in plastic bags, irrigating early on
268 (we are thinking in crops like melody), irrigating in tuber initiation and keeping it
269 quite down there is far more critical than irrigating later on, because actually you are
270 gonna be burning that crop off in mid-August, ready to go into a store second week
271 in September. The chances are you finish irrigating by the time the drought comes
272 in anyway, so you concentrate in that period really early on and making sure they
273 are absolutely down.

274 You know, when it is dry and you are a farmer, you want to actually irrigate
275 everything you got. But you have to make decisions about which crops you got,
276 what are your commitments because you have a contract with someone to supply
277 water with them and when you have done your plan, if your pumps go a 1,000 m³ a
278 day, you are gonna plan to supply 1,000 a day. You are not gonna go: oh, I am
279 gonna give you 500 hundred because he needs a thousand. He probably needs
280 15,000 but he can't have it...

281 **I: Would you consider that your attitude toward risk have changed over time**
282 **after being impacted by previous drought?**

283 G: If anything has changed is my attitude to the environmentalists. Just because it is
284 dry there shouldn't be any extra environmental protection, that is just a natural thing
285 that is happening, it is not my fault. And if we want to move forward, people as well
286 as businesses have to be water efficient. You cannot have just one little sector
287 using 2% being efficient because it doesn't make any difference to the big picture.
288 The public want to current live in Eastern region, they will have to sign up for pretty
289 heave draconian measures on water management. You know... the might not be
290 able to have their washing machines on all the day long, the bath has not to be
291 full... Little things like that over a lot of people have far more effect than whether a
292 farmer is irrigating at night time or during the day...it makes no difference at all. But
293 it is not regulated.

294 From where we sit, I talked about that before, if you have a borehole that is 50
295 metres of water in it, the environmentalists get worried when it drops to 49.5...Well,

296 there are still 49.5 meters of water at the other end of it. And they seem to think it is
297 somehow related to a problem in the SSSI. If it was related, that farm would have
298 stopped irrigating a long time ago. So it becomes a political decision about who gets
299 the water. I begin to think that water for food production is equally important as
300 water for lights, and water for drinking. You cannot go forward with a national water
301 policy because actually we are not gonna eat...We are gonna get it from Spain...Oh
302 no, Spain has just the same problem as we have. So it is selling the problem to
303 somebody else.

304 So there are really growing up decisions that have to be made here, and everyone
305 has to play their part. The quality side of it is exactly the same. It is people who are
306 causing all the problems, it is not farmers or industry or whatever. Is people driving
307 around the roads and living their lives what is causing the problems. It is not just
308 one sector at all...

309 **I: Do you think people in the UK are aware of these problems? I mean people**
310 **in their homes, doing their normal lives...**

311 G: They are aware that there is something going on. I don't think they are aware of
312 the details...There are letters in the papers quite regularly about it, and it is all
313 coming down to really should we have this level of environmental protection at all
314 costs? Does it matter that the river level goes down a millimetre? There are these
315 sort of arguments we are having... would anyone actually notice it? But they are
316 more worried when they are sailing in the rivers, would it be enough water for
317 sailing? That is the important...

318 **I: What do you think about the role that the EA, WAG, NFU play when there is**
319 **a drought? What is the help you receive from them? What is your feeling?**

320 G: I don't think people take it seriously enough in government. In the last drought
321 meeting in 2012 when it rained while we were there, and the Minister just said: OK,
322 it is raining, problem solved... And we were like...Not, it is not! ...And he said: well it
323 is raining so what is the problem now? ...OK, What about the rest of it?...It was a
324 joke the rest of the meeting.

325 I don't think the average person has any concept about what are we facing. In the
326 Lake District we had a lot of flood events one winter, and next summer we had a lot
327 of drought. And who have ever thought it was in the Lake District, one of the wettest
328 places in England? You know, we had a problem here in 2012, but it doesn't come
329 any surprise to the farmers. We see some of them changing management. But
330 some sectors got it very wrong...

331 I had a Dutch worker for about a year, and he told me so much about how the Dutch
332 treat water, and he was actually shock about what we did...It is not really being a
333 problem up until now, but you know we are lot more people now in the country.
334 There is no enough water to go around...

335 When a drought is coming there are a lot of meetings, lot more meetings, lot more
336 people turn up to them, so a lot more interest. On the back of the 2012 drought here

337 we wrote to the NFU and said: we are not satisfied with the work and the post that
338 has been created just as water resources.

339 [Confidential comment]

340 At the end of the day, you cannot do anything if there is a drought. Even if you think
341 you have the water, someone can come and say: sorry, you can't have the water...
342 You can get a S57 in the summer time and you cannot fill in your reservoir. That is a
343 business decision, you can build a reservoir of the size you need, or you just stop
344 growing irrigated crops...And that is actually the cheapest thing to do.

345 We can be as clever as we like thinking about this stuff. At the end of the day we
346 have got to get water deliver to our fields through a hose coming for about £0.04 a
347 cubic meter. You can't do that with a reservoir. That is pretty fundamental...and
348 some of the schemes we have been talking with Anglian Water put that figure at
349 more like £4 a cubic meter...The market place can't sustain that sort of level...It can
350 maybe 1 year in 10. And if that is a solution for 1 year in 10 that is fine, I don't have
351 a problem, because we have people that tank water about here, that have 3-4
352 lorries just to keep irrigation moving. And that is very expensive that year, but over
353 10 years in not that much money at all. Try to build a reservoir...But with a reservoir
354 costs normally £0.55 a cubic metre delivered to the field. Now if they applying 6
355 inches of water and there...100 pounds/acre over what should be charged. That is
356 effectively 100 pounds of their rent, and if their rent is only 300 quid they must be
357 growing cereals...

358 I have quite difficult conversations with people about what decisions they made and
359 where they went wrong, how we can make them right. But most farmers don't have
360 a clue where the problem is coming from, they don't do the figures properly.

361 I don't see reservoirs as the answer, I actually see aquifer recharge is the answer
362 and use the huge amount of water that we had underneath Norfolk. If you look at
363 the water availability maps of Norfolk is not that bad. It is people perception of what
364 is wrong. But if I want water I can get it from the EA. The problem I have is just the
365 farmer wants to invest ¾ million quid. But what is happening now is that land prices
366 is so expensive they are looking at reservoirs relative to buy...what they can buy for
367 65-70 acres...So reservoirs relative to buy land are quite cheap at the moment. But
368 reservoirs compared to surface or groundwater is extremely expensive.

369 **I: What things need to be changed for a better drought management in this**
370 **country?**

371 G: At the end of the day, there is nothing the government can do about it. You can't
372 trade during a drought, you cannot trade water in an over-licenced catchment so
373 trading is not the answer. Both Anglian Water and me both think alike on that. Can
374 we work closer with Anglian Water? Possibly, but in a drought they are gonna want
375 the water. Building reservoirs is astronomically expensive...Really only very wealthy
376 farmers are doing it, average farmers are not. It will take land out of
377 production...unless they are really forced into it, they are not interested. And they
378 would have to be getting a lot of compensations for the loss of their licences.

379 **I: It is interesting this thing about water markets. I know they mainly work**
380 **when there is a drought. So they idea is to give some flexibility to water**
381 **management and people...Do you think water trading should be improved**
382 **here in the UK?**

383 G: Water trading doesn't happen. There a lot of barriers to trading it...There is
384 enough water rights in agriculture now, twice as much as we need, and we are
385 using less water. The facts are these. Winter storage is going up slightly; it is maybe
386 5% more than it was 10 years ago, but still quite small. And that is why I don't think
387 it is the solution.

388 So what we suggested is if we move forward to 2020 when licence review is going
389 to stop, as we move up to that, between 2018 is the last round of CAMS here and
390 that is when the groundwater assessment is going to be done. So we double the
391 assessments, the catchment should be in balance and we got 2 years between
392 there and when the new system is implemented. There is a full of unused water in
393 agriculture and we feel we want to be allowed, I don't know if to trade it, but to move
394 it around towards where it is actually needed. If you are in a catchment and there is
395 no more water, well there is no more water, we cannot really do much about that.
396 But most catchments there is masses of water spear, it is on one farm there and we
397 can't use it over there. We could if we put piping, but there is always a reason why
398 you cannot move it.

399 **I: Well, in Spain is the same...**

400 G: I just think we got these catchments in balance as long as we are not causing
401 any environmental damage. And quite honestly there is no evidence we are doing it
402 anyway. There is evidence that water companies, as they have big abstractions in
403 one place...But on the whole there are lot of little holes all over the place, there is
404 very few of them over 60-70 thousand cubic meters, and this is over 6 months
405 period...that is nothing. And you also got people with 2,000 cubic meters and not
406 using it because the farm is on a contract farming agreement and this guy is
407 growing cereals with a combine on it. So...Oh, I might use it for spring barley 1 in 5
408 years or something...

409 So there is a lot of water sitting there which we want to be able to move around
410 within agriculture. And we suggested that to Defra but they didn't reply...Our
411 general feeling is that water trading is not going to work, and this is because the
412 environmental pressure. It works in Australia because most of the water comes out
413 from the river, as I understand it. We have very little abstraction coming straight
414 from the river. In fact, I can think of one. Because what you have got is the rivers,
415 with marshy land on the side and they practically goes to greasy land. Well the
416 arable land is straight right back so the chances are that if you are farmer who
417 grows crops you have land over there and someone else owns the greasy bits, so
418 you don't have access to the water. The only way you have to access water is going
419 down.

420 Where it floods in Norfolk tends to be the heavy sticky grounds, clay soils. We want
421 the water 20 miles away. Well, that would cost too much, £30 an acre each, just to

422 get it where you want to. So it is the same reason why Anglian Water doesn't move
423 water around, it is just too expensive.

424 Having said that, we are designing pumps systems that can move water much more
425 efficiently. I have one guy saying me the other day: Can we use solar panels to
426 move water?...Well, yes but wanna do it in 120 acres on...We might be able to sort
427 something out...So people thinking out of the box might be the answer. I just can't
428 see it working, it is too complicated and too much investment.

429 So, the water is basically in the wrong place. We have really good aquifers
430 underneath, they are always full...Why we could not use that? It is not affecting
431 anyone...

432 **I: What lessons can be learnt from previous drought? Do you think that**
433 **drought management is evolving in the right way?**

434 G: I have learnt that the governments aren't interested. Do you actually know that
435 there is no a department for water management in the country? There isn't an office
436 that you can walk into and they look after water. There is a few people on short-term
437 contracts who might look after it, and this is mainly because they are doing licence
438 renewals. But it is very much the EA. There isn't anything in Defra that you can talk
439 to...You know, this is one of the problems we have, you have to go straight to the
440 Minister...There is no department that look after government strategy. The strategy
441 is food... It was all linked to the supermarkets. They basically said: these people are
442 supplying the supermarkets. Supermarkets wants the big rebate back off, because
443 they might have too many lettuces or carrots or whatever...And if they went over it,
444 they pay a lot of money back...Why would you do it? Why would you even enter into
445 a contract with these people? So more secure contracts of that end would mean
446 more stability on the ground. When I say more stability on the ground I mean we
447 can plan much better than: Oh, there is a market option, let's go and grow this
448 crop...Which we all do as farmers. There are farmers in last drought that had
449 boreholes abstraction that went under threat, whose view in the drought was to
450 grow more potatoes...Completely opposite to the next door neighbour who is
451 pumping out of the river or whatever. And our strategy was mainly cut back
452 abstraction, cut back crop yield...No, his view was this is gonna be a good year, this
453 is Christmas coming. I can't blame him for it.

454 **I: Is there anything else you want to add in relation to drought before**
455 **concluding the interview?**

456 G: To really solve you need local people, local abstractors involved. You can't just
457 turn them on and off like a tap. They need to be involved in the longer term.

458 We have CAMS, this is WFD planning, and that all goes rolled into river basins
459 management plan. There isn't really a lot of input of WAG in the river basins
460 management plan. So they feel quite distanced from the planning process. But
461 having said that, the EA at the moment seems quite keen on moving things forward.
462 They are quite open to suggestions at the moment. It is probably the best I have
463 ever experienced.

464 So some things are good in the process, it does seem to be working. But I think it
465 could be better if you are in a catchment and there was someone at the EA that was
466 responsible for your catchment, rather than the way of application works at the
467 moment. I think the EA having an officer responsible for a catchment or multiple
468 catchments would be better than what is going on now. But it is a process. I
469 appreciate that is the way the government runs, but you can actually have a more
470 joined-up thinking if one person was responsible for 2 or 3 river catchments or
471 whatever. And then they probably understand where we are coming from, because I
472 find it quite difficult to talk to one person about one licence there, and then down the
473 river to have another different person to talk to...So you have the same
474 conversation over and over again.

475 Some people in Broadlands and the environmental groups, they have to learn how
476 to manage their land differently. The water moves to where it wants to go. The water
477 is going to go downhill, you cannot do anything about that. But some people that
478 have changed the land management are now blaming other people for what is going
479 on. And all that conflict needs to be got rid off. We actually talked to the MP two
480 days ago about how there is just too many environmental pressure groups out there,
481 and none of them has any joined-up thinking. One is worried about some animals
482 out there, other is more worried about plants...so they have different points of view
483 of the same piece of land. So they can even agree themselves about what they
484 want...

485 **I: I think that is all, thanks a lot for your input**

486 G: There is too many people or groups jumping on the back of water resources
487 trying to get some funding from the government, way too many. We were
488 complaining about that the other day. What are all these people trying to do? There
489 is no central solution for water resources because every irrigation system, every
490 urban water supply, every environmental pressure is different...So I can't see how
491 we can have a central think-tank that can solve the problem? Because the problem
492 here is completely different from the problem in other parts of the country.

493 **I: I think it is a good sign that there are a lot of people working on this, and the**
494 **government investing a lot of money in trying to better understand droughts.**
495 **That means it is a very important problem. But I don't know if we will come up**
496 **with a solution that can be applied to everyone because, as you said, each**
497 **land is different...**

498 G: Anglian Water is pushing ahead at the moment, and I understand where they are
499 coming from. But at the end of the day, looking from the point of view of Anglian
500 Water, not my point of view, or the farmers or even the public; I think we all know
501 where we want to go. Even they are starting to say that building reservoir is not the
502 solution, it is demand management and aquifer recharge. If we can get that right,
503 and it means that everyone should take their part...You can have some sort of
504 central government policy...but it just how people live their lives. The government
505 can do a lot about that, but at the end of the day we are English and we don't like to
506 be told what to do.