

## EDITORIAL – COMMUNICATION

Leonard G. Copping, Editor

In these days of social media, Facebook, Linked In, blogs and all the other ways of communicating electronically it seems very old fashioned and not a little optimistic to expect feedback from readers in the form of ‘Letters to the Editor’ on topics addressed in *Outlooks on Pest Management*. I do occasionally publish something that I believe will cause some readers problems (usually from a single issue pressure group) that uses arguments such as ‘everyone knows that this is true’ but with no evidence. The inference, of course, is that you are out of touch if you refuse to accept what is blindingly obvious to all or, even worse, that you are supporting the unsupportable. It is interesting that children at junior schools are enthused by science especially when it is taught by an enthusiastic teacher who involves their pupils in considering situations such as why does the moon not fall out of the sky and then explains them in simple terms, but based on real experimental data. Quite often, unfortunately, as the child moves through the system other educators introduce their own prejudice and lack of understanding and the child is quickly lost to science. I was picking my grandsons up from school when I heard a response to a toddler’s question that went something like ‘chemicals are really bad things and you must be sure not to become involved with them’. It is true that some chemicals such as household cleaners are not to be played with – but all chemicals? And surely a school and all parents lock them away from children and all are fitted with child proof locks? And there is never any mention of the fact that we are all chemicals and that everything we use from food, to motor cars, to paint are also chemicals – so some of them are good. But chemicals and chemistry are now considered by many as the bad guys and so several organisations are removing the words from their names. BASF, however, has been running advertisements in Europe that applaud chemistry and its applications – good for them, but how much impact has this had on the general public?

Not that long ago I wrote a review of a website article (<http://www.thehealthyhomeeconomist.com/real-reason-for-toxic-wheat-its-not-gluten/>) that claimed that the increase in the incidence of celiac disease was associated with farmers desiccating their wheat with glyphosate – not the gluten that it contains. The author claims that most diseases and conditions associated with the Western lifestyle are a consequence of glyphosate residues in food (particularly wheat). She really did say ‘most diseases’. I expected some response from readers, but there was none. Perhaps my mistake was not to title the piece ‘Evidence that glyphosate residues cause autoimmune diseases in consumers’, but that might have been taken as my believing in the spurious claims. But nobody wrote to me.

Some years ago I made up a very small piece of News. It said that in the last 12 months no one in Western Europe has

died as a consequence of eating conventionally grown food. I thought that this was a fair assumption as the press would have made a great deal out of people dying as a consequence of eating. Again no reaction.

In the December issue, I published a piece by Colin Tudge entitled ‘What is wrong with GM crops’. I had met Colin at an SCI Evening Lecture where he spoke, generally, in support of GM crops and so I decided to invite him to write something similar for *Outlooks on Pest Management*. He has been very busy over the past two years, but eventually came up with his article. The tone and claims expressed surprised me, but, after correction and editing it did make a readable, if not science-based, review. I was surprised that his opinions had changed so much during this period, but it is always important to publish both sides of every argument as long as the data used to justify each position are sound. I admit to having been somewhat generous with this piece.

Imagine my delight when I did receive an e-mail about this article. It came from one of the International Advisory Board members – an excellent scientist whose opinions I very much respect. He wrote “The Colin Tudge article in your December issues was fairly outrageous to me in places, even though some of what he says is true. Taken as a whole, he is saying that the farmers who have adopted GM technology are morons. Successful farmers cannot be morons. There are plenty of studies that show the overwhelming economic benefit to farmers in most situations in which they have adopted GM technologies. At the beginning at least, one can even make a strong argument that glyphosate-resistant crops benefited small farmers more than large farmers. At this point, the technology is probably farm size neutral. I could go on. The article was thought provoking. Unfortunately, to the uninformed, articles like this can be taken as gospel.” I also had a verbal comment from a Board member who pointed out that to claim that fruit and vegetables can be a sustainable source of vitamin A in regions of India that suffer significantly from xerophthalmia is wrong because these crops are seasonal and could never be a sustainable source of  $\beta$ -carotene. However, it was the final comment in the letter that bothered me most. It is true that words written in journals are often quoted by these single-issue pressure groups in support for a view (that often is not that of the author) by selection and omission of pieces and often quoting them out of context. I must be more careful.

It is interesting how different uses of molecular biology are considered by the general public. There is a general distrust of GM crops although this seems to be diminishing globally and it is only Europe that stands alone as a developed nation that is against the technology. In medicine, however, the opposite is true. Human insulin is widely used and accepted. Monoclonal antibodies also do not produce violent public protest.

However, when it comes to using new molecular techniques to modify human embryos to overcome inherited diseases the reaction is similar to GM crops – it is the slippery slope towards custom built babies. The situation is not helped when a British couple pay South Korean molecular biologists at Soom Biotech Research Foundation \$100,000 (£67,000) to have their pet dog cloned. Surely this is not the reason for this research?

Perhaps it is ignorance of the problems, which are often very rare, or the technology, which is hard to explain. It has been said that GM crops are condemned because the consumer sees no benefit to anybody except the ‘rich’ farmers and the multinational companies that have invested in the science. But Golden Rice funded by Syngenta and given away to the poor is still criticised. I have often talked about the failure of the ‘man in the street’ to understand the science and hence the benefits that leads to mistrust. But perhaps it is the fault of the companies in failing to explain the science and the benefits and in giving these new products names that increase the lack of trust. Why call a new product ‘herbicide resistant’? My sister-in-law told me she was against GM crops because you had to spray them with herbicides and she could not be convinced that all crops in conventional agriculture are sprayed. Why not ‘low herbicide crops’? I see a similar problem arising in other new technologies and wonder who thought ‘fracking’ was a good name for extracting gas from shale. Shakespeare wrote ‘A rose by any other name would smell as sweet’ but this is clearly not true today where a population with too much free time, too many ways to communicate and too little understanding of the science, protests about everything that is new or different.

UN Secretary General, Ban Ki-moon has said that 2016 must be when the global community begins to get its “priorities right,” whilst underlining that more and better work needs to be done. The UN chief began by declaring that 2016 must be a year in which landmark decisions on sustainable development “gain solid footing on the ground.” At the same time 2016 was declared the year of pulses – a sound idea, but I wonder if this is really the key agricultural and food priority. We will find out.

**What interesting advances occurred in 2015? A quick search of Google lists the following amongst others –** For traditional farming models, perhaps the primary determinant

of supply capacity is simply the availability and suitability of land. However, any idea of future potential must be built on current data, and what data there are then mapped to tell the story of a region. This story is effectively written in the soil. The Africa Soil Information Service (AfSIS) is developing continent-wide digital soil maps for sub-Saharan Africa using new analysis, statistics, field trials and crowd-sourcing. Funded by the Bill and Melinda Gates Foundation, the ISRIC World Soil Information AfSIS project has forged key partnerships with governments, plus a range of stakeholders and academic institutions, including the Earth Institute at Columbia University. Digital soil mapping, especially in data-sparse regions such as Africa, is key to planning sustainable agricultural intensification and natural resources management. With open access, these interactive maps are publicly available to be explored on Google Earth.

Hydroponics brings together fish and plant farming in one recirculating system. At Bioaqua Farm at Blackford in Somerset – the largest integrated aquaponic farm in Europe – vegetables are grown and Rainbow Trout reared together in organic symbiosis, without chemicals or pesticides, but with the help of bees and worms. The fish provide most of the plant nutrition, by way of aquaculture effluent. In turn, fish waste metabolites are removed by nitrification and direct uptake by plants, with the suitably treated water then flowing back to the fish. In all, it is claimed this virtuous circle of reciprocity requires up to 95% less water than traditional horticulture farming. For sustainable food production and agriculture, the aquaponics ecosystem principles also appear attractively scalable, from back gardens to commercial facilities.

I chose just two and am disappointed that these are the key advances according to my search results. I would have liked something about the movement towards IPM systems, the increased importance of biopesticides, the battle with resistance, improved application techniques, reduced environmental pollution, increased productivity and sustainability of agriculture. I agree that helping growers in sub-Saharan Africa is very important, but it is still a research project – maybe this year we will see some results.

Finally, I would like to wish all readers a happy and prosperous New Year. Keep the discoveries coming and send in your letters on items that you do not like or ones that you found useful.