

## A SUSTAINABLE FOOD SUPPLY TO MEET TOMORROW'S NEEDS.

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For the past two decades, most of the developed world has experienced plentiful food supplies. Populations were lulled into a sense of security that food production was plentiful. Indeed, the oversupply in Europe during the 1980s even created a level of hostility towards both modern farming methods and the efficiency of mechanisation that was producing high yielding crops. Throughout this period of burgeoning production, there were the voices of some prophesying that global population growth and the switching of appetites by the increasingly affluent Asians and Chinese to meat based diets would create global food shortage. But these prophetic voices were not being listened to. Instead, the developed nations were on the economic trail of financial services expansion, throwaway consumer goods and lifestyles that suggested the basics of food security were more than resolved. Even the indulgence in old production methods, such as organic, was proposed as the answer to sustainable food supply. But then at some point in the year 2007 the crossover happened. With just a limited change downward in global yields caused by the confluence of poor wheat harvest in some countries, rice shortages elsewhere, the growing of biofuels in the USA and the conversion of diets from grains to meats in China, plus the global population expansion, all conspired to create food commodity prices to rise for the first time in more than two decades.

Overnight politicians and media seized onto the topic of food security. Governments are suddenly in fear of inflation as the proportions of family spend on food takes a reversal from the years of a falling percentage to become a steadily increasing figure. Double digit growth in the cost of some food commodities had pushed overall food inflation in Europe to 7% in March 2008. Suddenly the end of cheap food had arrived. In May this year, the European Commission reacted to the new food supply situation by publishing a communication entitled: *Tackling the challenge of rising food prices - Directions for EU action*. Proof indeed that Europe, the home of agricultural oversupply for so many post war years, was now suddenly facing new food politics. Legislation that for the past number of years had placed a downward pressure on production is suddenly starting to look out of sequence with the realities of food production and demand.

Importantly, the general consensus is that the new food supply and cost situation is not just a blip. Of course there will be variation from year to year, but the key phenomenon is that the trend is now set unless technology of production can help alleviate the situation. Weather has created some of the short term problems, but climate change suggests that there will not be a long term respite from challenging growing conditions in many parts of the world. Advancing

deserts are already wiping out some areas of production in Africa and without sustainable irrigation agricultural production will be challenging. Animal grazing and lack of sufficient rain is currently turning Cyprus into a desert. The shortages have resulted in water rationing for Cypriote residents, let alone sufficient for agriculture.

So where do the solutions to the global food demand lie? Man has been an outstanding innovator. Science has delivered solutions against great challenges in the past and human endeavour can result in great achievement. The EU communication outlines a number of courses of action. In respect to agricultural production there are some key points: Firstly, the issue of biofuel production receives scrutiny. Within Europe the 10% target for transport by 2020 remains in place, but there is recognition that this target will lead to agricultural commodity price increases. The advent of so called second generation feed stock from wastes and by products etc. is seen as an important development to limit cannibalisation of food crop production. Secondly, a commitment to increase agricultural research funding within the EU is a welcome reversal of the trend for the past twenty years that has seen such a decline in state funded agricultural research and the consequential effect on new variety development. The research effort pinpoints the need to enhance sustainable productivity growth of agriculture both in Europe and in developing countries through, for example, new crop varieties and improved cropping systems with higher and more stable yields, more efficient use of water, greater resistance to diseases and environmental stress and less need for pesticides. The Communication indicates maintaining an open, but vigilant, GMO policy. There is certainly a stated recognition that GMO cultivation continues to spread outside of Europe.

In practice, how can agricultural production meet the growing demands of tomorrow? Moreover, how can production meet growing demands and yet maintain biodiversity, wilderness areas and ensure long term sustainability? The amount of agricultural land is certainly limited and in current production areas is actually decreasing due to urban expansion, soil erosion and desertification. Getting more from the same area becomes key as does the chance to grow plants in areas currently regarded as hostile. Greenhouse production, growing under fleece and plastic all offer significant opportunities for certain fruit and vegetable crops. Providing sustainable irrigation is available, opportunity for productivity growth is real in these situations. In hostile regions of the world such as dry arid lands, saline soils and cold climates, variety development appears to offer the best solution. But a rapid development of varieties suitable

for such environments is only likely in sufficient volume buy using GMO technology. Traditional breeding techniques, dependent on hit or miss methods are likely to take too long to develop or may even be impossible without modern gene transfer. Crop protection products, otherwise called pesticides, also offer real opportunity to maximise production. Today's modern pesticides are more targeted than ever before in their ability to deliver benefits to production. They pass stringent environmental and health regulatory hurdles and can contribute to sustainable agricultural regimes. Accurate application techniques combined with emerging technologies of satellite mapping, GPS guidance systems and diagnostic systems designed to ensure appropriate dose applications, will all contribute to future yield protection and increases. Pesticide residues in food, often purported by some to be reason to revert to the old methods of organic production, need to be put into context. There is an overwhelming level of scientific evidence that demonstrates the occasional low levels of residue sometimes detected in food offers no human health risks. Most especially, the benefits of eating fresh fruit and vegetables is now well known and for the health benefit of all, encouragement to eat fruit and vegetables is the route to chose for healthy nutrition. Method of production has failed to show significant health variation between organic and conventional production.

Consumer attitudes towards agricultural production and food will be a key element in shaping future food production methods. Retailers in the UK are probably amongst the most

sophisticated in the world with respect to marketing towards consumer needs and expectations. They have shown enormous ability to rise to the challenges of consumer trends whether it be Fair-Trade, local, free range, low fat, as well as the lifestyle drivers of convenience and choice. How sustainable satisfying all these demands will be remains to be seen. During times of food price inflation, especially in an economy under siege from fuel and energy price increases, value for money becomes a key element of the food offer. Ironically, supermarket competition helps to keep food prices down, but to some extent this is at the cost of the supply chains. Supply chains will need to gain significant cost savings to ensure they can deliver competitively to their retailer customers against rising input commodity prices. In some foods where commodity input is a key element of the food, it has not been possible to stave off rising prices. Examples include bread and meat products where wheat is a key input, be it flour or feed.

So we face new challenges, many here to stay. Effective solutions are needed and science and technology are most likely to deliver the solutions. Modern agriculture needs to be encouraged since it is unlikely that the lower yielding methods of the past will deliver the quantities of food now required in today's world. Solutions that combine modern methods with respect of the environment and a sustainable future need our encouragement and support.

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