

## THIS AND THAT PART 2

### SEVEN-A-DAY

Happy with “five-a-day”? Well, the nutrition and health experts now say “seven-a-day”. Based upon the eating habits of 65,000 people in England from 2001 to 2013 the researchers found there was a reduction in risk of dying of cancer of 25% and of heart disease of 31% for seven-a-day. For the overall risk, eating 1 to 3 portions a day of fruit and vegetables a day reduced the risk by 14%, 5 to 7 portions a day reduced the risk by 36% and 7 or more reduced the risk by 42%.

The 7 portions are each of 80 grams, so that amounts to a lot of fruit and vegetables every day – 560 grams or one pound four ounces in real money. The 7 portions should be mainly vegetables, but fruit juice is no good and canned and frozen fruit have a negative effect. Potatoes don't count for the seven-a-day.

### RAIN, RAIN AND RAIN

The latter part of Autumn 2013, the subsequent winter and the start to spring were all characterised by rain. It seemed to rain every single day and it was reported that it was the second most rainy period on record. There were terrible floods in some areas. But here in the Chiltern Hills we don't do floods, at least on the tops. The rain simply soaks into the ground and disappears, no matter how much rain falls. My allotment has a foot or so of topsoil, classed as “clay loam”, then there is 4 to 30 feet of sticky clay then 2,000 feet of chalk. Over the years rainwater has found channels through the clay so there is no flooding. Once into the chalk the water descends to the water table 300 feet below and joins the aquifer which supplies most of the drinking water for the south east of England.

But..... what happens to the 19 vital trace elements in the soil of my allotment? To be taken up by the plants they need to be water-soluble; being water-soluble they must be washed down into the subsoil by the rain. The chalk probably acts as a filter and the water probably ends up in the aquifer in a fairly pure state. However, that means that my allotment is being deprived of its vital trace elements every time it rains. After a few thousand years of rain, it is a wonder that there are any trace elements left to feed my vegetables and fruit. So, why is my allotment not a desert?

The answer must be that our old friends the soil micro-organisms have come riding to the rescue, like the 5<sup>th</sup> Cavalry riding on white horses and brandishing cutlasses. Well, perhaps not exactly like that, but with their bare teeth they attack soil particles which contain trace elements which hitherto have been non-water-soluble, ingest them and convert them to a water-soluble form. There is nothing they like better than to get their teeth into particles of sand or ancient rock in the soil and break them up. This process is continuous, so on the one hand we have rain leaching out the 19 vital trace elements and on the other hand soil micro-organisms converting non-water-soluble particles into the water-soluble form. (It should be said that plants do not require massive amounts of trace elements; the latter are usually measured in so many parts per million of soil.)

So, it is important that we have healthy soil which will provide an ideal medium for the soil micro-organisms to thrive. The soil should contain plenty of organic material to make the soil micro-organisms feel at home. In a handful of my allotment soil there are estimated to be 6 thousand million SPECIES of micro-organism. There are so many types that mankind has catalogued few of them thus far. They range from insects to bacteria to nematodes to viruses all living their lives in a fairly chaotic way but in the process doing us an immense service, in that without their work we could not survive – the 19 vital trace elements would not be available, fruit and vegetables and cereals would not grow and we would starve. And what can we do to encourage the soil micro-organisms in our gardens and allotments? Apply plenty of compost and farmyard manure to ensure

there is plenty of organic material in our soil. Such applications will also add trace elements directly, of course.

### BAD MICROBES

If I utter the word METHANOSARCINA you should shudder. So I'll not utter it again and simply say "Metho" which is easier to say and type. According to scientists at the Massachusetts Institute of Technology Metho microbes underwent a genetic change about 250 million years ago. Around the same time supervolcanic activity released lots of nickel, an essential nutrient for Metho which went through a period of explosive growth. Unfortunately the genetic change enabled Metho to generate vast quantities of methane, which combined with oxygen in the air to form carbon dioxide, a greenhouse gas extraordinaire. You know the rest – extreme global warming, acidification of seawater and 90 percent of species on land and sea were wiped out.

The descendants of Metho are still around. Just don't give them any nickel.

### FIND OF THE YEAR – CICORIA

I am constantly on the lookout for "new" species of fruit and vegetables, or new varieties of familiar crops. The scientists who hybridise existing plants to produce better-performing varieties have been doing amazing work in recent years and some of my crops are so much better than when I started growing my own. I really enjoy reading through seed catalogues and viewing packets of seed in garden centres to spot fruit and vegetables I have not tried before. Of course, not all of them work out. I have had many cases of crop failure because the newcomers did not like my soil or climate, and there is that final test – does the newcomer taste good? If not, end of trial.

But every now and again I come up with an absolute winner which is a complete surprise. The winner for 2013 was a vegetable called cicoria. I acquired a packet of seeds, written in Spanish (which I do not speak), and searched my library of gardening books in American English, English and French – to no avail. There is no mention in the Royal Horticultural Society's encyclopaedia, no mention anywhere. And yet it is a simply marvellous vegetable which appears to grow easily in our climate.

I sowed the tiny seed in a shallow pre-watered drill on the allotment in April but it was a very dry period and only 6 seeds germinated. So in May I sowed again. I was short of space so I chose to sow only 4 inches distant from the first row, hoping against hope that some more from the first sowing would germinate – they didn't. This time I had good germination and in the long, warm months of 2013 they grew to an impressive size. Each plant put up around 25 shoots vertically, to a height of 30 inches or so. Each shoot was nearly white in colour and about half an inch wide. Nearer the tops very short green leaves adorned each side of the shoot – both shoots and green leaves being edible.

Not having any guidance from gardening books I searched websites for ideas on how to eat cicoria. Virtually all the website information was in Spanish or Italian, but there was one website in English which was most useful. It would appear that cicoria is very popular throughout the Mediterranean and is from the chicory family. I grow salad chicory, and "chicons" or witloof endives in my loft in winter, but cicoria is nothing like those varieties. To cook cicoria one first meticulously cleans the stems and leaves, cuts them up into 2.5 inch lengths and soaks them in water for a few hours. Then they are boiled briefly, thoroughly drained and fried in a little olive oil. Cicoria as a vegetable is delicious with meat, chicken and fish and if served as an accompaniment to meat and chicken a little finely-chopped garlic can be added whilst frying. Delicious! A success!

Good gardening!      MIKE MASON