

# EDITORIAL

## THE ROOTS OF ORGANIC AGRICULTURE

This issue of the Journal of Organic Systems (JOS) draws us back to the roots of organic agriculture. Four studies explore a diversity of organic fertilizers and one study examines consumer concerns.

Before the current era of unease about manufactured nanomaterials in food and farming, genetically modified organisms (GMOs), antibiotic-fattened farm animals, and synthetic pesticides, there was the issue of synthetic fertilizers. It was concerns about the replacement of traditional organic fertilizers by the then new chemical fertilizers that precipitated the early stirrings of disquiet about the prevailing direction of agriculture and which has grown into today's organic agriculture movement.

When Dr Rudolf Steiner was urged to give a series of lectures on agriculture at Koberwitz (now Kobierzyce, Poland) in 1924, those farmers were concerned about the encroachment of chemical fertilizers into their domain, and their worries were that this was compromising the fertility of their farms and the nutritiousness of their food (Wachsmuth, 1989). In his eight lectures Steiner called for a differentiated agriculture that eschewed chemical fertilizers and championed organic fertilizers. He gave his indications about how such an agriculture might develop, he established an experimental group of agriculturists to develop it, and he urged that this differentiated (and at that point un-named) agriculture was for all farmers of the world (Steiner, 1924). His death shortly after the course meant that Steiner witnessed almost none of the diffusion or development of his ideas.

Earlier, Professor F H King had written his *Farmers of Forty Centuries* (1911). He was railing against the agricultural theories and practices advocated at the time by the United States Department of Agriculture (USDA) and he was carefully documenting, with an approving eye, the traditional practices of Asian farmers (Paull, 2011). He documented the cycle of farm produce travelling to the cities of China, Japan and Korea and the fastidious collection of the organic wastes of the cities and their transfer back to fertilize farms and fields.

King's championing of the merits of recycling all organic 'wastes' back as fertilizer to farms was prescient given that Haber and Bosch had only just demonstrated their process (the Haber-Bosch process) for capturing atmospheric nitrogen and converting it to ammonia (Haber, 1920). That process ushered in an era of cheap and abundant fertilizers - as well as cheap and abundant explosives. World War I facilitated the financing of massive industrial scale production of explosives using the Haber-Bosch process. The cessation of hostilities released this productive artefact of the war machine to service an untapped new market, farmers.

Albert Howard and Yeshwant Wad (1931) took up aspects of King's ideas in their book *The Waste Products of Agriculture: Their Utilization as Humus*. In quick succession, Ehrenfried Pfeiffer (1938) introduced Biodynamic agriculture to a worldwide audience, and Lord Northbourne (1940) coined the term 'organic farming' and released his manifesto of organic agriculture. All of these authors advocated for organic fertilizers. They wrote before farmers were introduced to DDT, the tasteless, indiscriminate and

persistent insecticide, that subsequently expanded the focus of the organic movement to synthetic pesticides (Pfeiffer, 1958).

This issue of JOS presents research from around the world - Africa, Asia, the Middle East and Australia. Four papers in this issue reveal empirical results with actionable outcomes for using various organic fertilizer regimes on nominated crops.

Maize is the world's number one cereal grain, a staple cereal for Africa and other parts of the world. In a study from Nigeria, Fabuni & Agbonlahor (2012) present the results of the green-manuring of maize and their analysis of farming practices that can be used "by small farmers to sustainably raise income and promote soil health" without the use of synthetic fertilizers.

Tomatoes are a favourite and versatile food relished around the globe, and Iran produces around five million tonnes annually. The paper by Kochakinezhad, Peyvast, Kashi & Olfati (2012) compares production parameters for four cultivars of tomatoes subjected to various regimes of chemical and organic fertilizers. The paper presents practical fertilization regimes tailored for each cultivars to produce yields from organic fertilizers comparable to yields from chemical fertilizer, with differences in yield of 0.5% to 4.3% between the tailored organic fertilizer regime and the chemical regime.

Wheat is the world's number three cereal grain and an important ingredient of the diet within many cultures. In India it is the second most important cereal crop - after rice. Davari, Sharma & Mirzakhani (2012) present the results of the application of various combinations of organic materials and biofertilizers on aspects of wheat production including the yield and the economics of these organic fertilization regimes. As the author's state, these results "hold promise for organic wheat farming".

Lemon grass is a herb, native to India, which is popular in various Asian cuisines and is used as a tea, in cosmetics and in Ayurvedic medicine. The study by Punam, Kumar, Sharma & Atul (2012) reports the positive effects of biodynamic agricultural practices and Homa farming (using agnihotra ash) accounting for increased yields (+144%, +155% compared to the control) and higher oil content (+99%, +124%).

From the very beginning, consumers have been an important element of the organic movement, expressing their concerns about the quality of their food and its relationship to their health, and voting with their wallets. Pearson (2012) presents the responses of a sample of Australian consumers to a list of nine "priority actions for improving sustainability in the food system" produced by the UK's Sustainable Development Commission (SDC) in 2009. Of these nine "priority actions" eating more organic food was rated as a mid-level priority by the SDC but as the lowest priority by the Australian respondents. Eighty seven percent of the respondents purchased organic food ('rarely' to 'always') while 54% of respondents "indicated a readiness to increase their organic consumption". If consumers are to drive the growth of organics, then harnessing that reported 'readiness' is the challenge and the opportunity for the sector.

Finally, in this issue of JOS, the book *Rudolf Steiner - Alchemy of the Everyday* (Kries, Vegesack & Althaus, 2010) is reviewed (Paull, 2012). Agriculture was the last of the 'impulses' that Steiner unleashed on the world and this book presents the myriad of his interests and presents his agriculture (which evolved to become biodynamic agriculture) in the context of the rich tapestry of his life and work.

JOS is a free, open access, peer reviewed journal. There is an ongoing call for papers on the multiplicity of aspects of the organics sector in all its diversity worldwide. For upcoming issues, JOS is keen to receive papers exploring the economics of organic food and agriculture, the achievements and challenges of manufacturing and marketing organic produce, analyses of the size of the fringe organics sector (i.e. non-certified organic), the breeding of varieties specifically suited to organic production, as well as a variety of perspectives on organic food, farming, floristry and forestry and kindred subjects.

John Paull, Editor

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