Herbert Bartz - No till pioneer in Brazil. Success through innovation, determination and perseverance

Herbert Bartz n a field of Black Oats desiccated for planting – 1994.
Photo: John N. Landers

Tradition is an important factor in the make-up of a farmer. Born in the state of Santa Catarina in 1937, Herbert Bartz, descendant of German immigrants, took up residence in Rolândia, in the North of the state of Paraná, in the 1960’s, after studying four years at the University of Aachen in Germany. In Paraná, he started farming in the conventional way. One night, in November 1971, he was startled awake by a heavy thunderstorm. Worried about the erosion on his newly planted crops, he put on a raincoat and went out to the fields with a flashlight. He could see most of his topsoil swimming away in the torrents. This was the motivation for his adoption of no-till farming. He sought Rolf Derpsch, an agronomist of the German Development Agency (GAWI, now GTZ) working at the Ministry of Agriculture Research Station-IPEAME, in Londrina, Paraná, only 30 km away from Rolândia. From this visit he was convinced of the pressing need for soil conservation. He received literature from Rolf on optimum tillage, minimum tillage, and no-till or zero tillage, which at that time were just evolving in the UK and USA. After obtaining more information, he deepened his resolve to learn more about these new methods of soil conservation. As a result, in 1972, Herbert Bartz carried out the first on-farm tests of direct drilling (no-till) in Brazil, made possible through loan of a no till planter from Rolf Derpsch. The seeder was a Hassia 1.5 m wide German machine with big iron wheels equipped with heavy springs that allowed discs to penetrate into undisturbed soil when driving slowly and putting weight on the machine (e. g. fertilizer). The success of this operation (the no-till plot was always looking a little bit greener and better) convinced Herbert Bartz that the technique had potential, but he also realized that he needed to know more about it and especially about planting in straw mulch. At that time Brian O’Dwyer (deceased) and Terry Wiles from ICI Brasil (a subsidiary of the British agrochemicals conglomerates that invented Paraquat) and other international ICI staff, became active in diffusing the no-till technology in the region.

Wanting to know more, Herbert Bartz set out on a pilgrimage ICI’s experiment station in Fernhurst, England and to the USA—the ticket was to be paid in three instalments when he got back. At Fernhurst, he was exposed to details of the revolutionary new technique of using Paraquat as the basis for weed control in no-till farming or “direct drilling” (as the English called it). He also visited a number of farmers practising the new technique. For the return trip, ICI organized a visit with Shirley Phillips of the Agricultural Extension Services at the University of Kentucky, in the USA. This great pioneer of no-till
farming explained all aspects on the new seeding method, while also introducing him to Harry Young at Herdon (KY) a farmer with already ten years of experience with no-till. Instinctively knowing that this was the only way to go, Herbert Bartz ordered an Allis Chalmers triple disc, 8 rows, no-till planter, complete with herbicide tanks and spray nozzles. At this time, a killing frost turned his winter wheat into a total loss, with the result that he had to sell almost all his conventional farm equipment to pay off the bank loan. So, with no ploughs or discs to prepare the soil, it was no-till or nothing. In spring 1972, Herbert Bartz planted his entire area of 220 hectares to soybeans with no-till. Pre-plant weed control was 2.4 litres ha⁻¹ of paraquat plus 2 litres of 2,4-D.

In his first years of no-till, Herbert Bartz experienced many serious problems with weed control, and had to complement the pre-plant desiccation with hand hoeing and in-row directed spraying of paraquat. This caused stem lesions and secondary fungal attacks resulting in yield losses. Over the period 1972-1975, yields dropped from 2,500 to 1,500 kg ha⁻¹. Just when Herbert Bartz was dickering with a return to conventional tillage, a second generation of no-till herbicides made its début in Brazil. The first post-planting and preemergence herbicides (1975/76) raised soya yields back to 2,500 kg ha⁻¹, and provided much better soil mulch conditions due to the heavy crop residues. However, herbicide effectiveness was now hampered by adsorption to the organic matter at the soil surface. The real advance came in 1977 with the third generation, the post-emergent selective herbicides, initially coming from Paraguay. His success was fundamental in convincing researchers that no-till farming was feasible.

At about this time, as a member of the advisory board of EMBRAPA Wheat at Passo Fundo (State of Rio Grande do Sul), Herbert Bartz convinced the head of the centre to import no-till planters from the UK and USA. These are the basis for the highly advanced machines available today. In Paraná, the State Agronomic Institute (IAPAR) signed, in 1977, the first private sector contract with ICI for research in no-till farming. In parallel, a GTZ German Development project was generating valuable information on green manure cover crops (Derpsch et al., 1985a, 1985b) which became a milestone for research and practical use of cover crops in Brazil. This, combined with the new post-emergent herbicides, gave the no-till rotations definitive form and viability. With the influence of Herbert Bartz, farmers from the region of Ponta Grossa (State of Paraná) who had started no-till practices in 1976, stimulated the private sector and spearheaded by cooperatives (Arapoti, Batavo and Castrolanda), organized the ABC Foundation. Amongst other research, the ABC team documented and perfected the new low-volume spraying techniques, introduced by Herbert Bartz, to get higher herbicide efficiency and reduce weed control costs.

In 1992, Herbert Bartz participated in the foundation of FEBRAPDP, being its president on many occasions, and, a few years later in the foundation of CAAPAS.

After 42 years, the experience of Herbert Bartz is still a point of reference in ZT/CA, not only for subtropical areas of the southern region of Brazil, but also for the tropics nationally and internationally.