

A passion for permanent pasture

David Crespo, a farmer from Portugal, believes that permanent pasture is an “outstanding resource” which can significantly improve animal production. But the usual grasses grown require high nitrogen inputs and lack protein for the animals. He has developed a system of integrating legumes in the pasture which means he has not used nitrogen fertiliser on his grasslands for 25 years.

David’s passion for grasslands started when he joined the Plant Improvement Station (INIA) in Elvas, Portugal. In those days there were no sown pastures in the Portuguese farming systems,. He believed that this system could be reversed since the soil and climate conditions in Portugal were generally more adapted to pastures than to cereals. This was the start of his research career on pasture and forage crops. Nowadays he is still just as passionate and enthusiastic about permanent pasture and is a member of the EIP-AGRI Focus Group on Permanent Grasslands.



Inspiration, observation and research

In 1965 David, a researcher at the time, visited some Southern areas of Australia. He was impressed with the success the farmers had in recovering soils which had been worn out by an excessive cultivation of cereals. They had achieved this by growing sub-clovers and medics (both of Mediterranean origin) to improve the pasture.

Back in Portugal, the soil was also dry and was lacking nitrogen. David looked into what nature was already providing and considered the advantages of complementing this by including legumes in the grasslands. From his experience and research he thought about possible multi-species and multi-variety mixtures to respond to the variability of local soil and climate conditions. He believed this would increase productivity and persistence in his pastures.

Efficient symbiotic fixing nitrogen is a key issue for increasing productivity at low cost. For each legume species there is a specific and effective strain of Rhizobium which is needed to fix nitrogen successfully in the soil so before composing any mixture, the seeds should be inoculated. David then went on to think about what was needed to keep a long lasting, productive pasture. As well as providing adequate phosphate fertilizers, he still had to include non-nitrogen-fixing plants (grasses) which would use the excess nitrogen fixed by legumes.

These are the elements that inspired him to create of the concept of Biodiverse Permanent Pastures Rich in Legumes (BPPRL), complemented with the Biodiverse Fodder Crops Rich in Legumes (BFCL).

Putting the idea into practice

A few years later David Crespo had the opportunity to establish this type of pasture in his own farm in Vaiamonte, Portugal. The first paddock was 42 ha, and since then, the area has grown to the current size of 264 ha of rain-fed BPPRL and 80 ha of BFCRL partially under irrigation. With this innovation, the farm has been able to increase from the original 300 merino ewes to the current 2200 Asaf milking ewes. As well as this, the BPPRL is four times richer in terms of soil organic matter, which had led to the sequestration in the soil of a considerable amount of atmospheric CO₂. This has had very positive impacts on controlling erosion and increasing the water-holding capacity of the soil.

David wanted to spread the word "I had the aim of providing a tool to farmers for the implementation of my philosophy on the sustainable improvement of pasture and forage crops, based on legumes and biological Nitrogen fixation", he explains. And this is why, in association with his sons, he created his company Fertiprado. Making the most of David's knowledge, experience and passion, and using his wide network within the seed industry in Australia, New Zealand, USA and some European countries, Fertiprado is now developing and promoting BPPRL. According to David, these pastures have an important role in increasing animal production at low cost and with positive consequences on the environment, all resulting in an increased economic sustainability for farmers.



A real fan of grasslands

David is fully convinced that permanent grasslands have a very important role in conserving ecosystems, producing meat and milk of high quality, keeping human populations in rural areas, and providing invaluable services to our welfare and the health of our planet. In some areas, their abandonment due to lack of profitability is at risk, and measures to improve their productivity need be implemented and stimulated. Research efforts should be also stimulated leading to find appropriate solutions for certain areas where actual systems have a deficient performance. "These are really the main challenges which should be given full consideration if we wish to continue benefiting from this outstanding resource" David concludes.



David Crespo has worked as a farmer for 30 years. Before that he was a researcher at Plant Improvement Station (INIA) in Elvas (Portugal) and also FAO consultant as a specialist in Mediterranean and subtropical pastures, having worked in Africa, West Asia, Central and South America. Together with his sons he set up Fertiprado company in 1990. 25% of the company's staff works on research and development, focussing on new grassland varieties and species selection as well as improvement of phosphorus utilisation by plant roots. He is now retired and his son has taken over as director, but he continues to develop new ideas as the first day.