

Lecture by Dr. Walter Goldstein, Mandaamin Institute (Wisconsin, USA), at the INIAV Gene Bank, Braga
16 June 2026

Demeter is committed to safeguarding seed quality worldwide. In anticipation of the EU requirement that organic farmers use organically produced seeds from 1 January 2037, Demeter already recommends that farmers make this transition today. Biodynamic agriculture follows a holistic approach, respecting the integrity of plants and the intelligence of nature.

Following the recent EU deregulation of gene-editing technologies for plants and seeds, Demeter remains committed to ensuring that biodynamic seed production remains free from contamination by these technologies. To explore alternative breeding approaches and their benefits for both plants and human nutrition, Dr. Walter Goldstein was invited to deliver a lecture at the INIAV Gene Bank in Braga.

Dr. Goldstein is a biodynamic plant breeder whose primary focus has been maize for more than 35 years. He is the founder of the Mandaamin Institute, which collaborates with several universities on plant breeding projects and works closely with Native American communities. During his lecture, he presented photographs of maize cultivation among the Hopi people, where high-quality maize is successfully grown in sandy dune environments with very little soil. This remarkable phenomenon inspired his research into how maize plants can thrive under such challenging conditions.



His investigations revealed that certain maize varieties support abundant bacterial activity, which contributes to plant nutrition and protein formation. These varieties also demonstrate the ability to capture nitrogen from the atmosphere, reducing dependence on external nitrogen inputs.

Dr. Goldstein showed real-time video footage illustrating bacterial movement within plant tissues. Research conducted by the Mandaamin Institute comparing modern conventional maize varieties with biodynamic breeding lines demonstrated significant advantages in bacterial activity, nitrogen sequestration, protein content, and other important nutritional characteristics. The biodynamic varieties showed stable performance while maintaining good yields.

The Mandaamin Institute produces and markets both open-pollinated and hybrid biodynamic maize varieties. During the lively discussion with the 24 participants, Dr. Goldstein expressed a strong interest in producing his varieties in Portugal. Sementes Vivas has agreed to support this initiative, and the varieties will be tested under Portuguese conditions with the possibility of future registration.

The event was jointly organised by INIAV, Demeter Portugal, and Living Seeds – Sementes Vivas. INIAV hosts one of the world's largest maize collections, and Dr. Ana Maria Barata guided participants through the gene bank and part of the maize collection, which contains more than 2,700 accessions. Maize seeds are conserved at either -18°C or 5°C , ensuring a storage lifespan of at least ten years.

