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Obituary

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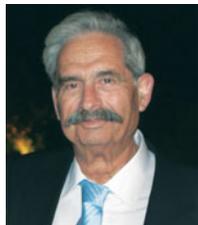
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The world has lost a major contributor to research on desert plants and in particular on seed germination. Yitzchak was born in Israel, served in the Israeli army and was a founding member of Kibbutz 'Ein-Gedi'. He obtained his B.S. (1966), M.S. (1967) and Ph.D. (1969) from the Hebrew University in Jerusalem, the latter two degrees under the direction of the famous desert ecologist/seed physiologist Michael Evenari. For his Ph.D. thesis, Yitzchak tested the effect of photoperiodic of the mother plant during seed development on the germination response of the seeds produced. In particu-

lar, he showed that for *Ononis cicula* (Fabaceae) permeability or impermeability of the mature seeds to water was greatly influenced by the photoperiod experienced by the mother plant. Yitzchak did a postdoc with Professor W. Heydecker at Nottingham University in England. He became a lecturer at Ben-Gurion University of the Negev in 1972 and was promoted to Associate Professor in 1982 and to Professor in 1990. In 1980, he became a Head of the Unit for Ecophysiology and Introduction of Desert Plants, The Institute for Desert Research, Sede Boker Campus of Ben-Gurion University. He formally retired in 2005 as Professor Emeritus but remained on the Sede Boker campus doing research, publishing papers and doing volunteer teaching until 2021. He advised or co-advised 12 M.Sc. and 7 Ph.D. (including Zhenying Huang) students. Yitzchak fulfilled his promise to devote his life to science.

Professor Gutterman remained interested in maternal environmental effects on germination of seeds and published several papers on this subject. His other areas of primary interest were the effects of microenvironments made by the digging of animals (porcupines and ibex) on seed germination and seedling establishment in the Negev Desert; ecophysiology of seed mucilage; and ecological life-history strategies of desert plants, especially seed dispersal, germination, seedling survival and flowering. It is noteworthy that several of Yitzchak's studies were on wild relatives of wheat (*Aegilops ovata*, *Triticum dicoccoides*) and of barley (*Hordium spontaneum*). He published about 200 papers and book chapters. Yitzchak also published three books on desert plants, one of which was *Seed Germination in Desert Plants. Adaptations of Desert Organisms* (Springer-Verlag, 1993).

Yitzchak was well known to members of the international seed community, not only because of his many publications on seeds but also because he attended one or more conferences and/or had sabbaticals in many countries, including Australia, Belgium, Canada, Czech Republic, China, Denmark, England, France, Germany, Greece, Hungary, India, Italy, Mexico, South Africa, Spain, Sweden, The Netherlands and USA, gave talks and enjoyed meeting and discussing seed science with fellow seed scientists. Jerry and Carol Baskin first met Yitzchak in 1980 at 'Botany 80' at the University of British Columbia in Canada.

Professor Gutterman will long be remembered for his many studies on desert plants. He was fascinated by the mysteries of the desert and worked hard to discover how nature worked in the desert. He is probably best known internationally among seed scientists for his research and publications on the effects of maternal environment, for example, photoperiod, on seed germination. It was a privilege for the three authors of this *in memoriam* to field trip with Professor Gutterman in the Negev Desert and the matorral in Israel in spring 1998 and in the cold desert of Xinjiang in NW China in summer 2006. Yitzchak was not only an excellent seed scientist but also a superb desert ecologist/naturalist. He loved his late wife Mina, his 3 children (Tzokit, Ron and Tal), 10 grandchildren (Roe, Tomer, Shachaf, Bar, Raz, Amit, Oren, Amitay, Nuphar and Ofri), 6 great grandchildren (Kerem, Rotem, Evyatar, Emri, Emri and Omer), Israel and the desert and its mysteries. He also cared deeply about his students and friends, and we were lucky to be included among his many friends.

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Picture courtesy of Tal Gutterman Nave, taken on 22 March
2007.