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Dedication

The 20th century was an era of tremendous challenges related to soil and water conservation. A few examples that readily come to mind are those of the early 1930s, such as the Dust Bowl and agricultural systems with depleted nutrient balances that reduced yields, as well as high erosion rates that degraded soil and water resources.

During this challenging time, policymakers, the private industry, and other conservationists worked together to find solutions and develop policies and best management practices. Through their efforts, a new approach to conservation agriculture emerged that contributed to a golden era in soil and water conservation. One of the key figures of this era was Hugh Hammond Bennett, a founding member of the Soil and Water Conservation Society and the first chief of the US Department of Agriculture's Soil Conservation Service (known today as the Natural Resources Conservation Service).

Global population growth had created an urgent need to increase agricultural productivity to feed the world by the 1950s, and the aforementioned groups, with plant breeders and soil fertility and nutrient managers, worked to develop a new response. The era of the Green Revolution and more intensive agriculture significantly increased yields and helped to feed people around the world. One of the great leaders of this time was Norman Borlaug, the "father of the Green Revolution," who received the Nobel Peace Prize in 1970.

In the last few decades, great new challenges have emerged, driven by a changing climate with extreme weather events, the ever-present need to continue to increase agricultural productivity to feed the growing human population, and losses of nutrients from agricultural systems that have impacted water quality, among other challenges. A new approach was needed and called for a similar team of professionals such as those that contributed to the golden era of soil and water conservation in the 1930s and the Green Revolution in the 1950s and 1960s. In the 1970s and 1980s, we started to use geographic information systems (GIS) and computers in agriculture, and by the 1990s and 2000s, we were increasingly using global positioning systems

(GPS), GIS, remote sensing, and modeling to apply precision agriculture and precision conservation in the present era of smart agriculture.

The next 75 years will likely witness a new era of modeling, genetic and bioengineering, microbiology, machine learning, artificial intelligence, robotics, drones, and other scientific and technological advances for soil and water conservation.

Each of these eras—past, present, and future—are distinct in their challenges, successes, lessons learned, and opportunities. This book aims to honor and thank all those personnel who contributed to the soil and water conservation success stories of the past, to celebrate those working tirelessly to tackle the challenges of the present day, and inspire those who will contribute to future achievements in the emerging era of machine learning, artificial intelligence, robotics, and genetic and bioengineering to protect soil and water resources for agricultural systems and increase the health of soils, crops, and animal systems. In addition, this book is dedicated to all the professionals of these past, present, and future eras working to conserve soil and water resources in natural systems, such as foresters, biologists, ecologists, and the many other professionals whose work also contributes to conservation of the biosphere.