

Historical Timeline of the Department of Biological and Agricultural Engineering

1862

Agricultural Colleges Land Grant Act (Morrill Act) provides land grants to the states for establishing institutions of higher education.

1868

University of California established with first campus at Berkeley.

1905

California University Farm Bill authorizes UC Regents to purchase land for the establishment of a University Farm School.

1906

Davisville selected as site for the University Farm.

1907

University Farm dedicated. Davisville renamed Davis. American Society of Agricultural Engineers (ASAE) founded.

1909

University Farm School opens at Davis.

1914

Federal Smith-Lever Act creates Cooperative Extension services as partnerships between the land-grant colleges and the United States Department of Agriculture (USDA).

1915

Division of Agricultural Engineering established at Davis. J. B. Davidson recruited to organize and staff the Division and appointed founding head of the Division. J. Koeber, R.C. Ingram and H.L. Belton instruct courses in two-year program for non-degree students.

1916

Construction started on first Agricultural Engineering building at Davis. Five acres also dedicated for farm machinery instruction.

1917

Division of Agricultural Engineering occupies newly completed Agricultural Engineering Building.

1921

E. J. Stirniman appointed first agricultural extension engineer at Davis. A.J. Hoffman initiates research on air cleaners for tractor engines and develops what becomes standard engine air filtration for mobile and stationary engines.

1922

University Farm becomes the Northern Branch of the College of Agriculture. Division starts service courses for four-year agriculture students.

1924

Formation of the California Committee on the Relation of Electricity to Agriculture (CREA). CREA administered through Agricultural Engineering (L.J. Fletcher founding chair, B.D. Moses founding secretary).

1926

Agricultural Engineering organized as an option within Mechanical Engineering at UC Berkeley. First three years of degree program at UC Berkeley with final year at Davis.

1927

J.R. Tavernetti awarded first Bachelor of Science degree in Agricultural Engineering. First Masters of Science degree awarded to E.G. McKibben.

1928

Agricultural Engineering moves to the newly constructed Walker Hall (named 1959). First Farm Machinery Conference and first Farm Building Conference held.

1929

First Rural Electrification Conference (later Rural Energy Conference).

1937

A. Leonard develops return stack orchard heater for frost protection, significantly reducing air pollution and improving efficiency.

1938

Northern Branch of the College of Agriculture renamed the College of Agriculture at Davis.

1951

College of Letters and Science established, provides instruction in math, physics and chemistry for Agricultural Engineering students. First two years of Agricultural Engineering instruction offered at Davis, third year remains at UC Berkeley or UC Los Angeles with fourth year at Davis.

1952

College of Agriculture becomes independent from UC Berkeley. Second textbook in Ferguson Agricultural Engineering series published by E.L. Barger, W.M. Carleton, E.G. McKibben and R. Bainer on *Tractors and Their Power Units* (1st Edition, John Wiley & Sons, New York).

1955

Third and fifth texts in the Ferguson Agricultural Engineering series published by Wiley: *Principles of Farm Machinery* by R. Bainer, R.A. Kepner and E.L. Barger and *Agricultural Process Engineering* by S.M. Henderson and R.L. Perry.

1956

L. H. Lamouria, R. R. Parks, and C. Lorenzen design the first rollover protection structure (ROPS) for tractors. ROPS later adopted for other vehicles.

1959

UC Davis designated an independent campus of the University of California. Agricultural Engineering becomes a department within the UC Davis College of Agriculture. Prototype UC Davis mechanical tomato harvester successfully tested at Clarksburg, California. N.B. Akesson and W.E. Yates first to quantify pesticide spray drift and develop predictive drift models.

1960

D. van Rest awarded first PhD in Agricultural Engineering at UC Davis. C. Lorenzen, I.J. Szluka (Steven Sluka) and F.L. Hill file for a patent on the tomato harvester (Patent No. 3199604, 1965). Two-year non-degree program of instruction terminated. A. Leonard outlines reentry prediction technique for use on Satellite 1958 d2, successfully applied by Moonwatch program on Sputnik IV reentry.

1961

Graduate Division established at UC Davis. L.W. Neubauer and H.B. Walker publish *Farm Building Design* (Prentice-Hall, Englewood Cliffs, New Jersey).

1962

College of Engineering established at UC Davis. R. Bainer, head of Agricultural Engineering, appointed founding dean of the college and recruits initial college faculty. Agricultural Engineering becomes a department within the College of Engineering in addition to the College of Agriculture.

1963

C.F. Kelly becomes Assistant Director of the Agricultural Experiment Station and transfers to Berkeley (appointed Director in 1965).

1967

Quarter system replaces semesters at the University of California. College of Agriculture renamed College of Agricultural and Environmental Sciences. Agricultural Engineering moves from Walker Hall to its current location in the newly constructed Bainer Hall (named in 1969).

1970

Division of Atmospheric Science formed as part of the department.

1974

V. Cervinka, W. J. Chancellor, et al., publish landmark study of energy use in agriculture (Cervinka, V., W.J. Chancellor, R.J. Coffelt, R.G. Curley and J.B. Dobie. 1974. Energy requirements for agriculture in California. California Department of Food and Agriculture, Sacramento, California). B.C. Horsfield and J.R. Goss initiate research into biomass thermochemical gasification. D.J. Hills initiates research into anaerobic digestion of agricultural wastes and residues. W.J. Chancellor investigates biodiesel and other alternative engine fuels. N.B. Akesson and W.E. Yates publish *The Use of Aircraft in Agriculture* (UN FAO Book 94).

1975

CREA renamed the California Committee on the Relation of Energy to Agriculture in recognition of global events affecting overall energy supply for agriculture and other sectors. Administration of CREA continues through Agricultural Engineering at UC Davis. Department of Land, Air and Water Resources formed at UC Davis with transfer of Division of Atmospheric Science faculty and creation of joint appointments in both departments.

1976

J.C. Harper publishes *Elements of Food Engineering* (AVI, Westport, Connecticut).

1981

R.P. Singh and D. Brown awarded U.S. Patent US 4,285,099A for a squid processing machine that is later licensed and commercialized.

1984

R.P. Singh and D.R. Heldman publish first edition of *Introduction to Food Engineering* (Academic Press, Elsevier, London; now in 5th Edition and six languages).

1986

UC Davis rollover protection structure (ROPS) designated a historical landmark by ASAE.

1988

D.K. Giles develops first pulse-width modulated spray control system for agricultural applications. Later refined in 1997 to provide dynamic droplet size control.

1992

Department of Agricultural Engineering becomes the Department of Biological and Agricultural Engineering with new undergraduate and graduate degrees in Biological Systems Engineering (EBS).

1993

Applied Biological Systems Technology (ABT) program established by the department through consolidation of Agricultural Practices, Agricultural Engineering Technology and Consumer Technology curricula with addition of new courses of instruction. Undergraduate minors created in Applied Biological Systems Technology, Geographic Information Systems, and Precision Agriculture.

1995

First volume of *Advances in Soil Dynamics* published by ASAE (S.K. Upadhyaya, W.J. Chancellor, et al., editors). D.K. Giles develops first global positioning system (GPS) controlled spray drift reduction system.

1996

CREA suspended following legislative deregulation of the electricity sector in California under Assembly Bill 1890.

1999

R.P. Singh and F. Courtois implement one of the first remotely-operated laboratory teaching experiments in food engineering engaging students from multiple countries in operating equipment in Bainer Hall at UC Davis.

2001

Western Center for Agricultural Equipment completed at UC Davis culminating a decade-long donor campaign led by department chair D.J. Hills.

2002

Vol. II of *Advances in Soil Mechanics* published by ASAE (S.K. Upadhyaya, W.J. Chancellor, et al., editors). R. Zhang and Z. Zhang obtain U.S. Patent No. 6,342,378 for a anaerobic phased-solids biogasification system for agricultural residues, food wastes and other organic materials with subsequent commercial development.

2003

California Biomass Collaborative established with support of the California Energy Commission (B.M. Jenkins founding director).

2005

ASAE renamed the American Society of Agricultural and Biological Engineers (ASABE). UC Davis tomato harvester designated a historical landmark by ASABE. Joe A. Heidrick Western Center for Agricultural Equipment dedicated at UC Davis.

2006

Prototype fruit and vegetable processor developed for NASA by R.P. Singh, D. Voit and M. Santos as part of planning for manned missions to Mars.

2009

Vol. III of *Advances in Soil Mechanics* published by ASABE (S.K. Upadhyaya, W.J. Chancellor, et al., editors). Hills Drive leading to the Western Center for Agricultural Equipment designated an official street of the UC Davis campus in honor of former chair D.J. Hills.

2012

D.C. Slaughter develops first GPS controlled weeding system. Department administration partially clustered with Departments of Food Science and Technology, Textiles and Clothing, and Viticulture and Enology (BFTV Cluster). Department administers new engineering minors in Energy Science and Technology, Energy Efficiency, and Energy Policy.

2013

D.K. Giles conducts first chemical applications in the U.S. using an unmanned aerial vehicle (UAV).

2015

J. VanderGheynst from Biological and Agricultural Engineering appointed interim dean of the College of Engineering. Department celebrates 100th anniversary.