

Date of Hearing: June 29, 2021

ASSEMBLY COMMITTEE ON HIGHER EDUCATION
Jose Medina, Chair
SB 453 (Hurtado) – As Amended May 20, 2021

SENATE VOTE: 39-0

SUBJECT: Agriculture: Biosecurity and Emerging Infectious Disease Fund

SUMMARY: Establishes the Biosecurity and Emerging Infectious Disease Fund to continuously appropriate funds for the purpose of supporting research at the Jordan Agricultural Research Center at California State University (CSU), Fresno on biosecurity and emerging infectious disease related to agriculture, as defined. Specifically, **this bill:**

- 1) Establishes the Biosecurity and Emerging Infectious Disease Fund (BEID fund) within the State Treasury for the purpose of supporting research on biosecurity and emerging infectious diseases related to agriculture and mitigating the effects of emerging infectious diseases on meat, poultry, and other agricultural production.
 - a) Requires all moneys within the fund to be continuously appropriated to the California Department of Food and Agriculture (CDFA) for allocation to the CSU Foundation, who will distribute the moneys to the Jordan Agricultural Research Center at CSU Fresno to conduct research, as enumerated in (1) above; and,
 - b) Permits the BEID fund to receive federal, state, local, and private funds.
- 2) Makes Legislative findings and declarations regarding the necessity for a special statute as for the creation of the BEID Fund because the Jordan Agricultural Research Center (JARC) at CSU Fresno is uniquely situated to investigate biosecurity and emerging infectious diseases with experts in the field of agriculture, engineering, science and mathematics working together at the top agricultural region in the world.

EXISTING LAW:

- 1) Establishes the CSU system, made of 23 campuses, and bestows upon the CSU Trustees, through the Board of Trustees, the powers, duties, and functions with respect to the management, administration, and control of the CSU system (EDC Section 66606 and 89030, et seq).
- 2) Appropriates funds each fiscal year to the CDFA for the emergency detection, investigation, or eradication of agricultural plant or animal pests or diseases during the fiscal year. Per the discretion of the Secretary of the CDFA, the funds appropriated may also be used for planning and research involving detection, investigation, eradication, and methods of quarantine compliance for agricultural plants or animal pests, or diseases (Food and Agriculture Code (FAC) Section 224 f(1)).
- 3) Authorizes the Secretary of the CDFA to establish and administer a research program to control vertebrate pests that pose a significant threat to the welfare of the state's agricultural

economy, infrastructure, and the public. Specifically authorizes the program to do the following:

- a) Investigate effective and economical alternative materials for control of vertebrate pests, including the use of carbon monoxide, as defined;
 - b) Solicit and consider research proposals for alternative human methods of controlling the vertebrate pests;
 - c) Continue vertebrate pest control product registration at the state level of current products until alternative products are developed that are proven to be effective and economical;
 - d) Provide funding for the development of scientific data to fulfill registration requirements of pest control products; and,
 - e) Cooperate with the United States Department of Agriculture to fund research programs to maintain, develop, and register vertebrate pest control materials used in the State (FAC Section 6025.5).
- 4) Urges the University of California (UC) Board of Regents to establish the Sustainable Agriculture Research and Education Program to do the following:
- a) Support competitive grants for research on sustainable agricultural practices including organic methods, biological control, and integrated pests management including the analysis of economic factors influencing the long-term sustainability of California agriculture;
 - b) Give instructions and practical demonstrations in agriculture and imparting information through demonstrations, publications and distribution of information in connection with the Sustainable Agriculture Research and Education Program; and,
 - c) Plan and manage UC farmlands committed to supporting long-term continuous research in sustainable agricultural practices and farming systems (FAC Section 553(a)).

FISCAL EFFECT: According the Senate Appropriations Committee, CDFR would incur minor and absorbable costs.

COMMENTS: *Double Referral.* The measure passed out of the Assembly Agriculture Committee on June 16, 2021, with a vote of 10 – 0.

Need for this measure. According to the author, “The Biden Administration has indicated that expanding pandemic preparedness funding and pandemic readiness is a priority. I also believe these must be priorities for us nationally and as a State. SB 453 lays the groundwork to ensure California and the Nation are ready for the next global pandemic by allocating funds for research on biosecurity and emerging infectious disease. Studying and mapping future diseases, while improving our diagnostics is one way the State can move forward with an eye to future challenges that may already be headed our way.”

Biosecurity and emerging infectious diseases. According to the California Department of Food and Agriculture, agricultural biosecurity is a series of management procedures designed to

prevent or greatly reduce the risk of introducing infectious agents to a farm. Since September 11, 2001 agricultural biosecurity has been one of the nation's primary concerns. The National Institute of Food and Agriculture (NIFA) partners with universities throughout the nation to protect the integrity, reliability, sustainability, and profitability of U.S. food and agricultural systems against threats from pests, disease, containments, and disasters and to mitigate the threat posed by any foreign or emerging constraint on our nation's economy and food supply. An example of a biosecurity threat to U.S agricultural is the citrus greening disease which has a devastating effect on the citrus industry in California. To address this biosecurity need, the NIFA in 2014 funded biosecurity research at the University of California, Riverside to develop disease resistant variants of citrus.

As defined by SB 453, biosecurity and infectious diseases is similar to zoonosis. According to the World Health Organization, zoonosis is any disease or infection that is naturally transmissible from animals to humans. There are over 200 known types of zoonosis diseases including Ebola virus and most recently the coronavirus-19 (COVID-19). To study zoonosis is to study how diseases are established within animal or plant life systems and then transfer to humans or the breakdown of biosecurity and the creation of infectious diseases.

In response to the global pandemic caused by the COVID-19, the National Institute of Health awarded 11 grants totaling \$17 million for the creation of 11 Centers for Research in Emerging Infectious Diseases (CREID). The centers are a global network involving multidisciplinary investigations into how and where viruses and other pathogens emerge from wildlife and spill over into diseases in people. According to Dr. Anthony S. Fauci, "the CREID network will enable early warnings of emerging diseases wherever they occur which will be critical to rapid responses. The knowledge gained through this research will increase our preparedness for future outbreaks." Each CREID will focus research efforts on one or more region of the world. Three universities in California received federal funding to establish a CREID including two public universities: UC Davis and UC Berkeley. UC Davis is the lead organization for the EpiCenter for Emerging infectious Diseases Intelligence and specifically examines the emergence of viruses in forests and rapidly urbanizing environments, such as the Amazon basin. The multidisciplinary team includes expertise in infectious disease epidemiology, human and animal health, virology, medical entomology, and disease modeling. UC Berkeley is the lead organization for the American and Asian Centers for Arboviral Research and Enhanced Surveillance which has responded to outbreaks in close collaboration with local and international health authorities in Asia and the Americas, including the United States. The team includes world-renowned investigators in arbovirology, epidemiology, immunology, viral diagnostics, phylogenetics, and clinical research.

Jordan Agricultural Research Center. The JARC was completed in May 2016, and fosters collaboration between the studies of agriculture, engineering, science, and mathematics. CSU Fresno is located within the top agricultural region of the world and the JARC provides space to discover and investigate the most advanced concepts and practices of agriculture, food, and natural resources. The research center was a \$24 million project that includes instrument and robotics lab, environmental quality lab, bioenergy lab, a genomics lab, and a microbiology lab. Current research conducted by faculty at the lab include improving the management of wild and seeding ling diseases impacting the California cotton industry and effectiveness of post-harvest chlorine water washing procedures to control food pathogens on fresh produce selling at local farmer's markets.

CSU Agricultural Research Institute (ARI). CSU Fresno, and by extension the JRAC, is part of the ARI at the CSU which represents a partnership across multiple CSU campuses and disciplines to provide applied research to ensure the sustainability of California agriculture. The ARI is composed of four member campuses: CSU Chico, CSU Fresno, Cal Poly Pomona, and Cal Poly San Luis Obispo, and two associate campus: CSU Humboldt and CSU Monterey Bay. Since 1999, the ARI has provided research on 947 projects equating to \$161 million in grant funding. The ARI partners with the UC and industry partners to conduct faculty and student led applied research projects on topics relevant to the agriculture industry including establishing the incidence of salmonella in retail California almonds for the purpose of confirming the effectiveness of pasteurization of almonds. Each year the ARI accepts proposals and disperses funding for research projects at the various affiliated CSU campuses.

Master Plan of Higher Education. The 1960 Master Plan of Higher Education (Master Plan) established the primary mission and functions of the three public higher education systems in relation to providing service to students and the state of California.

The UC is the state's primary academic research institution and is to provide undergraduate, graduate, and professional education to students. Research conducted by the UC on behalf of the State include the study of the epidemiology of firearm violence and its prevention. Faculty from UC Davis was one of the authors on the Biosecurity Toolkit for Equine Events provided by the CDFA.

The CSU was established to provide undergraduate and graduate education through master's degrees including professional and teacher education. Faculty research is conducted as part of instruction for students.

The California Community Colleges (CCC) is to provide academic and vocational instruction for older and younger students through the first two years of undergraduate education. Based upon the Master Plan, and the mission of the CCC, the CCC is not authorized to conduct research at the level this bill calls upon.

Arguments in support. Biotechnology Innovation Organization states "The COVID-19 pandemic demonstrates the link between infectious diseases and climate change. Human encroachment into biodiverse areas and population shifts due to climate displacement will increase the risk of dangerous zoonotic diseases—those that jump between animals and people—like COVID-19. BIO and CLS support additional research to better prevent, prepare for, and respond to zoonotic disease outbreaks like COVID-19 and other challenges arising from increasing climate change."

Committee comments. SB 453 is intended to provide funding to the JRAC for the purpose of studying and mitigating biosecurity and infectious disease. Other state universities who conduct this type of research include Kansas State University home to the Biosecurity Research Institute (BRI). The BRI mission is to lead through research and education to protect agriculture and the public from biological threats and is a biosafety level three facility that conducts studies on pathogens affecting plants, animals, food products, including zoonotic pathogens that infect humans. While the JRAC is equipped to study applied research such as deducing the effectiveness of post-harvest chlorine water washing procedures to control food pathogens, it is not a level three biosafety facility nor are there faculty with infectious disease, epidemiology, or virology experience.

The author has opined the need for the Biosecurity and Emerging Infectious Disease Fund in order to receive federal funding for this research. However, the UC system has already received millions of dollars to conduct research on the transference and mitigation of viruses from wildlife to humans. SB 453 would be duplicative in nature as the UC is not only equipped, but already conducting the type of research this bill calls upon the CSU to conduct.

As established by the Master Plan, if the State is to conduct or fund research it should first consult the UC as it is their primary mission to provide academic research for the state. According to the Emerging Infectious Disease Journal, peer-reviewed paper, *Zoonotic Disease Programs for Enhancing Global Health Security*, the best practice to research and mitigate the impacts of zoonotic diseases is to develop laboratory systems in public health and veterinary sectors including universities. The UC system is a world-class research system, which has veterinary and medical schools who could develop this type of collaborative laboratory system.

In the past, the Legislature has not allocated funding for a specific purpose to a specific CSU campus. Typically, the Legislature will provide funding to the system and enable the system to determine which campus has the expertise to conduct research through a competitive research bid process. SB 1 (Beall), Chapter 5, Statutes of 2017, among other allocations, provided \$2,000,000 to the CSU system for allocation to campuses for the purpose of conducting transportation research and transportation-related workforce education, training, and development.

To alleviate the policy concerns listed in this analysis regarding research capacity of the chosen CSU campus, the duplicative nature of the research, and the lack of equity in the provision of research funds to other universities, *the Committee has recommended and the author has accepted, amendments that strike the current version of the bill and instead:*

Section 1 Education Code Section 89455 (a) (1) The Agricultural Biosecurity Fund hereby created within the State Treasury. Notwithstanding Section 13340 of the Government Code, all monies in the fund are continuously appropriated to the California State University Agricultural Research Institute for allocation without regard to fiscal year for purposes of supporting research on biosecurity, related to agriculture, and establishing best practices to mitigate the introduction and effects of infectious agents upon the animal and plant agricultural system of California.

(2) The Agricultural Biosecurity Fund may receive funds from federal, state, local, and private sources.

(b) The California State University Agricultural Research Institute shall administer a grant program for research on biosecurity, relating to agriculture and establishing best practices to mitigate the introduction and effects of infectious agents upon the animal and plant agricultural system of California.

(1) All research funds shall be awarded to campuses of the California State University associated with the California State University Agricultural Research Institute, including but not limited to,

- (i) California State University, Chico*
- (ii) California State University, Fresno*
- (iii) California State Polytechnic University, Pomona*
- (iv) California State Polytechnic University, San Luis Obispo*
- (v) California State University, Humboldt*

(vi) California State University, Monterey Bay

(2) All research funds shall be awarded on the basis of scientific merit as determined by an open, competitive peer review process that assures objectivity, consistency, and high quality. All qualified investigators, affiliated with one of the campuses of the California State University listed in subparagraph (1), shall have equal access and opportunity to compete for the funds.

REGISTERED SUPPORT / OPPOSITION:

Support

Biotechnology Innovation Organization
California Life Sciences

Opposition

None on file.

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