

West Virginia (West Virginia State University)

Plan of Work for 2023-2027

Status: Final (Approved 9/7/2022)

Executive Summary Overview

This new Plan of Work for the University's Research (Section 1445) and Extension (Section 1444) brings new opportunities to continue aligning the University, State and Federal priorities. The University's leadership team is actively seeking further opportunities to find program synergies, build greater collaboration and identify pathways for new integrated efforts with academic programming. In fact, the recent addition of the 1890 Scholarship program has made possible to create additional agricultural curricula, including plant and soil sciences, applied chemistry, agribusiness and agricultural economics. The University's Masters of Science in Biotechnology program keeps strengthening by the infusion of research activities and implementation of new graduate (e.g. Computer Sciences) and undergraduate (e.g. Mechanical, Civil and Chemical Engineering) programs in the STEM fields, within the WVSU College of Natural Sciences and Mathematics, are also expected to translate into benefits and opportunities for research activities. The well-established institutional split appointment system, including graduate research faculty between the academic colleges and the Institute has resulted in increased participation of undergraduate and graduate students in agricultural and environmental research.

The following provides details of the work supported by Evans-Allen, Section 1444 Program and McIntire-Stennis formula funds appropriated to 1890 Institutions and matching funds provided by the State of West Virginia. WVSU's aligns its programs within six critical areas based on ongoing stakeholder input as well as identified emerging issues within the State of West Virginia.

I. Food Access, Security and Safety & Sustainable Agriculture

Both, in urban and rural areas in West Virginia, access to healthy and safe fresh food is a challenge for vulnerable populations. Increased sustainable production of agricultural products and food, implementation of proper processing/handling of food and food products, as well as improved access to quality fresh food and food products are key issues to increase food security in West Virginia. The Appalachian Region has unique threats and opportunities as it relates to environmental, water, energy, food and natural resources management. All of these issues are interrelated and have a significant impact on agricultural and economic activities throughout the state.

Our proposed plan to work on an array of research and extension programs will support a diversity of enterprises for current and future farmers in our state. Research programs focused on improvement of the safety, quality, and sustainability of specialty crops such as microgreens, tomatoes, peppers and, other cucurbits crops (melon, watermelon, pumpkin, and squash) as well as aquaculture production and pollinator health, will benefit the farmers in WV. Extension programs will focus on postharvest handling support for farmers as well as education on sustainable agricultural practices.

II. Climate Change, Energy and Natural Resources Management

The Appalachian Region has unique threats and opportunities as it relates to environmental, water, energy and natural resources management. Ongoing activities of the extractive industries and the legacy of point and nonpoint sources of pollution continue to be major environmental and ecological issues affecting West Virginia's agriculture, natural resources, its land management, and the wellbeing of its communities. Looking forward, West Virginia seeks to develop sustainable alternative and clean energy sources, address legacy problems, and to deal with fallout from climate change. Protection and restoration of environmental quality and ecosystem services and the development of economically effective and environmentally sound and sustainable resource management practices, while effectively mitigating the effects of climate change, are essential steps for the prosperity of the state. WVSU research and extension programs will work to study, protect and restore environmental quality and ecosystem services while developing economically effective and environmentally sound and sustainable management practices for alternative energy/bioenergy, bioproducts, agriculture, forestry, mining, and rural communities and anticipating and adapting. Additionally, the WVSU Land-Grant programs will join our fellow 1890 Universities in a multistate multidisciplinary consortium to further development, implementation, and adoption of climate-smart technologies and management and conservation practices, and promote equity and advancement of socially disadvantaged farmers, landowners, and communities of color.

III. Health Disparities

People living in both rural and urban communities in WV experience disparities related to physical and behavioral health which has a significant impact on their overall well-being. These health disparities are often a result of poverty, lack of gainful employment, and poor or no access to basic resources. Furthermore, the current opioid epidemic, affecting families in urban and rural communities, compounds these problems. National statistics reflect that in West Virginia the diabetes mortality rate is 53% higher than the rest of the nation, the average adult feels mentally unhealthy 31% more often than the average American, and the years of potential life lost is 47% higher than the rest of the country. Focused research and outreach programming can assist in tackling health disparities and improving the well-being of WV communities. Many people living in both rural and urban communities in WV experience disparities related to physical and behavioral health and well-being. These disparities are often a result of poverty, lack of gainful employment, and lack of access to resources. The opioid epidemic compounds these issues further. WVSU-ES plans to expand the portfolio of programs addressing these issues leading to health disparities in West Virginia over the next five years

IV. Community Revitalization

Communities in southern WV continue suffering from economic hardship brought on by the decline of its extractive (e.g. coal), chemical and other industries. The lack of economic opportunities in these communities results in them losing their sense of purpose and identity, making it more difficult to attract new businesses to empty storefronts. Moreover, these communities also have a difficult time to attract new residents or gradually lose their existing ones. Organization and revitalization efforts are needed to restore a sense of community to these locations and attract new businesses and residents for a future of economic prosperity. Many communities in WV suffer from economic hardship brought on by the exit of extractive (e.g. coal) and other industries. These communities lose a sense of purpose and identity making it difficult to attract new businesses to empty store fronts. WVSU-ES will continue

strengthening local partnerships with organizations in southern West Virginia counties in order to provide targeted community revitalizations efforts. Projects include beautification through public art, street scaping and green space development, community event organization, outdoor recreation development, and placemaking/heritage initiatives.

V. Strengthening Youth and Families

Poverty and the opioid epidemic are two critical issues which are changing the dynamic of families in WV and negatively impacting the future of its youth. The changing family structure resulting in more non-parental relatives raising children in WV results in mental and financial stress for those individuals impacted. Youth living in low socioeconomic areas are academically disadvantaged and at increased risk of behavioral health issues. These issues are especially pronounced for youth impacted by the opioid (and other drugs) epidemic who tend to experience frequent traumatic events. In addition, the pandemic has resulted in a learning gap for youth due to lack of consistent and stable school attendance. Teachers are stretched trying to deal with the learning gaps revealed due to intermittent school closures and lack on in-person teaching. WVSU-ES plans to take a systematic approach which includes not only expansion of programming designed to strengthen families impacted by the issues above but also strengthening the communities in which they reside.

VI. Innovation and Entrepreneurship

The WVSU Land-Grant program operates a collaborative Center for the Advancement of Science, Technology, Engineering, and Mathematics (CASTEM), whose mission is that of encouraging West Virginia's youth to pursue careers in STEM fields and inspire them to become future engineers, scientists, researchers, teachers and leaders. CASTEM accomplishes this mission using a multipronged approach to reach K-12 students, informal and formal educators, and undergraduate students with . WVSU CASTEM offers academic year science classes and summer camps, coordinates undergraduate research programs, and hosts training and loan programs for educators to borrow equipment and supplies.

WVSU-ES operates an Economic Development Center (EDC) which provides low cost office rentals, voice and capture studios and business services as well as assistance in early-stage startups, creative and interactive media industries through a peer-based mentoring system, support from business mentors, community and state organizations.

Our main area of focus is Workforce Development, the EDC develops and manages workforce solutions that respond to business needs and increase economic opportunities. Designed to boost regional economic growth and resiliency. Our Workforce development program serves employers and connects youth and adult career seekers to employment and training opportunities. As Charleston Westside workforce development hub, the EDC lives at the intersection of business, government, and nonprofits, leveraging existing partnerships and forge new collaborations that positively affect all of the residents of Charleston.

Merit and Scientific Peer Review Processes

All research proposals in relation to projects sponsored through the Evans-Allen program (and associated state match) undergo a structured peer review by an external panel. The reviewers for the external panel are selected nationally and include prominent and active scientists with research expertise on the associated respective fields of study. Reviewers provide valuable and detail feedback for these projects based on an established review format, including relevant suggestions for program improvement. Their input is then reviewed internally and incorporated to the proposals prior to submission to NIFA.

The University's Agricultural Research and Extension unit invites faculty members from all academic Colleges to submit proposals that are congruent with the University's Plan of Work and associated USDA-NIFA strategic research priority/critical areas. Eligible proposals will undergo an internal merit evaluation conducted by participating faculty in Evans-Allen programs, research associate director and research director. Proposals are evaluated for its intellectual merit as well as proposed broader impacts. Successful proposals will be further expanded into a full proposal for external peer review.

1890 Extension funds (and associated state match) are typically used to enhance, expand, or otherwise complement funds that have been successfully obtained through a competitive grant process and as such, the associated projects have been approved by and deemed relevant and appropriate by the funding agency. Faculty from all Colleges at WVSU will be also invited to participate in existing or new Extension programs. A similar review process, as the one described for research, will be conducted to select the final extension projects.

All external grant submissions for both Research and Extension must complete an internal review process prior to submission to the sponsored agency. All 1890 Research and Extension programs conducted by employees are subject to annual performance evaluations.

Stakeholder input: Action Taken to Seek Stakeholder Input

Stakeholder input is collected on a continual basis for both Research and Extension programs.

During the last Plan of Work, WVSU proposed to explore opportunities to reenergize its external stakeholder's advisory group (Research and Extension Advisory Committee -REAC) in order to extract and continue securing valuable formal feedback. Unfortunately, circumstances associated with the pandemic hindered the University's ability to do so. As this situation normalizes, WVSU will invite and reengage new Advisors who will be officially invited to be part of this endeavor. Advisors can remain for up to 5 years (e.g. Plan of Work five-year cycle). Advisors will be asked to provide stakeholder input through two semiannual surveys (e.g. January and June) as well a face-to-face annual campus visit. During the annual campus visit (June of July), all the Advisors will come together for the first part of the meeting (first 1.5 hours). During this general session, Advisors will be presented with a summary of all inputs derived from their individual advice. During the general session, Advisors will also be given the opportunity to voice their input related to potential integration activities between the research and extension programming they may have identified. During the second part of the meeting (last 2 hours), Advisors will go into smaller groups, based on their relevant fields of expertise or areas of engagement, to provide further input. Stakeholder inputs will be collected, reviewed, and incorporated into research

and extension programs, whenever feasible. This advice and the ways in which was incorporated will be reported annually through the Annual Report of Accomplishments.

Within the research side, each scientist participating in the Evans-Allen program will also have at least one annual meeting with specific stakeholder groups. This annual meeting can be carried on via existing formats, such as field day meetings, or other formats which may be more suitable for the research area under consideration. The stakeholder input will be collected by the individual scientists and reported to the Associate and Research Directors, 30-days after the activity has taken place (by June 30 of each year).

WVSU-ES develops smaller program based advisory committees which typically meet on a biannual basis. These advisory committees are populated with local program stakeholders to help inform the direction of the targeted program on a continual basis.

Other stakeholder input and feedback is also collected both formally and informally through community meetings, focuses listening sessions, public events, during WVSU Day at the Legislature, at the state fair, through web-based surveys, and in more formal advisory committee meetings which are convened quarterly. WVSU Extension professionals work very closely with local stakeholders to ensure impactful relevant program is being delivered to the communities of WV. Program participants are given the opportunity to submit feedback through formal evaluation forms.

Stakeholder input: Methods to Identify Individuals and Groups

Stakeholders, including the advisory committee membership, are selected from diverse venues and represent different fields and organizations. Typical stakeholders may include: Community/Civic leaders; Program partners; Program recipients; Collaborators, Research and extension professionals at other Universities; and Local business/industry.

On the research side, each research faculty participating in the Evans-Allen program is asked to identify and propose up to three stakeholder members. For the REAC, a list of potential stakeholders (up to five) are required to be submitted by Research faculty and Extension personnel. Administrators further identify and propose other possible stakeholder participants. The final list for the REAC membership is then assembled, based on the membership acceptance, and distributed to all research and extension personnel.

When stakeholders and/or advisors are lost due to relocation, lack of participation, or by request, a new advisor is appointed within 30 days. Similarly, in the event advisors complete their 5-year terms, they can either be reappointed or replaced by new stakeholders within 30 days.

Stakeholder input: Methods for Collecting Stakeholder Input

Stakeholder input is collected throughout the year via facilitated listening sessions, one-on-one interviews, formal and informal discussions and feedback surveys

Stakeholder input: A Statement of How the Input Will Be Considered

Collected input from stakeholders is carefully reviewed and discussed among the research and extension personnel comprising the different programing areas. On the Extension side, the Extension Associate Director and Program Leaders will lead the discussions and document the input along with their

discussions. On the Research side, the Associate Research Director will meet with the research faculty engaged in all the different research areas and collectively discuss the stakeholder input received. The Associate Director will document the input along with the discussions. The goal of the group discussions is to ensure that all the stakeholder input is reviewed and understood by all the research and extension personnel. The discussions will also be useful to understand how the stakeholder input will be embedded into their programs and program improvement. This exercise will be conducted at least once annually.

Critical Issues

Climate Change and Natural Resources Management

Initiated on: Nov 26, 2019

State: West Virginia

Term Length: Long-term (>5 years)

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Science Emphasis Area

Agroclimate Science, Environmental Systems, Family & Consumer Sciences

Climate Change and Natural Resources Management

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Science Emphasis Area

Agroclimate Science, Bioeconomy, Bioenergy, and Bioproducts, Environmental Systems

Community Revitalization

Initiated on: Nov 26, 2019

State: West Virginia

Term Length: Long-term (>5 years)

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Science Emphasis Area

Family & Consumer Sciences, Sustainable Agricultural Production Systems, Youth Development

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Science Emphasis Area

Education and Multicultural Alliances

Food Access, Security and Safety / Sustainable Agriculture

Initiated on: Nov 26, 2019

State: West Virginia

Term Length: Long-term (>5 years)

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Science Emphasis Area

Environmental Systems, Food Safety, Sustainable Agricultural Production Systems

Food Access, Security and Safety/Sustainable Agriculture

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Science Emphasis Area

Family & Consumer Sciences, Food Safety, Sustainable Agricultural Production Systems

Health Disparities

Initiated on: Nov 26, 2019

State: West Virginia

Term Length: Long-term (>5 years)

Many people living in both rural and urban communities in WV experience disparities related to physical and behavioral health and overall well-being. These disparities are often a result of poverty, lack of gainful employment, and lack of access to resources. The opioid epidemic compounds these issues further. In WV the diabetes mortality rate is 53% higher than the rest of the nation, the average adult feels mentally unhealthy 31% more often than the average American, and the years of potential life lost is 47% higher than the rest of the country.

Science Emphasis Area

Family & Consumer Sciences, Human Nutrition, Youth Development

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Science Emphasis Area

Education and Multicultural Alliances, Family & Consumer Sciences, Human Nutrition, Youth Development

Innovation and Entrepreneurship

Initiated on: Nov 26, 2019

State: West Virginia

Term Length: Long-term (>5 years)

53% of working aged adults in West Virginia are either unemployed or have stopped pursuing viable employment opportunities. Some of the unemployment can be addressed through boosting economic viability in West Virginia through support of a strong innovation economy. Training and business start up assistance is needed to help current or aspiring entrepreneurs reach their goal of gainful employment through new business creation. A robust innovation economy requires the availability of a workforce skilled in the STEM disciplines. Many West Virginia youth come from economically and academically disadvantaged areas which translate into difficult entry in and sustainability of matriculation through STEM curricula.

Science Emphasis Area

Education and Multicultural Alliances, Youth Development

Nutrition and Obesity Prevention

Initiated on: Nov 26, 2019

State: West Virginia

Term Length: Long-term (>5 years)

In 2017, West Virginia led the nation in the rate of adult obesity (38%) and obesity-related chronic diseases such as diabetes (15%) and hypertension (44%). WV was lowest among the states for percentages of adults that met recommendations for servings of fruit (7.3%) and vegetables (5.8%) and among the highest for sugar-sweetened beverage consumption. These dietary patterns and lack of physical activity contribute to obesity and chronic disease which contributes to days of lost productivity and poor quality of life. Nutrition and obesity prevention are important for a healthy workforce and for the state's economic development.

Science Emphasis Area

Education and Multicultural Alliances, Family & Consumer Sciences, Food Safety, Human Nutrition, Sustainable Agricultural Production Systems, Youth Development

Strengthening Youth and Families

Initiated on: Nov 26, 2019

State: West Virginia

Term Length: Long-term (>5 years)

Poverty and the opioid epidemic are two issues which are changing the dynamic of families in WV and negatively impacting the future of our youth. The changing family structure resulting in more non-parental relatives raising children in WV results in mental and financial stress for the individuals impacted. Youth living in low socioeconomic areas are academically disadvantaged and at increased

risk of behavioral health issues. These issues are especially pronounced for youth impacted by the opioid (and other drugs) epidemic who tend to experience frequent traumatic events.

Science Emphasis Area

Education and Multicultural Alliances, Family & Consumer Sciences, Human Nutrition, Youth Development

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Science Emphasis Area

Education and Multicultural Alliances, Family & Consumer Sciences, Youth Development