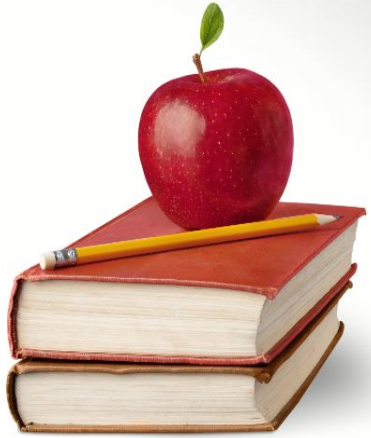
WELCOME TO THE

ag EDUCATION SUMMIT



Why are we here?

Farming is all around us. Yet we're further from agriculture than ever.

We are responsible for educating our neighbors about the origins and culture of food, benefits of farming as a career, a means to feed the community, and a partner in conservation.

MARYLAND DEPARTMENT OF AGRICULTURE
50 YEARS

Ag Education- Considerations & Questions

1. Survey our current inventory of agriculture education tools.
2. Learn the challenges preventing growth.
3. Engage with our peers to strengthen our connectivity.
4. Discuss opportunities & propose some actions to further agriculture education.

Let's get some answers from our presenters

(+ lunch + discussion)

10:15am *State of Agriculture Education - Challenges & Opportunities*

- Susanne Richards, *Maryland Agriculture Education Foundation*
- Tyler Hough, *Maryland Farm Bureau*
- Aaron Geiman, *Westminster High School; President, Region VI; Maryland Agriculture Teachers Association*
- Susan Summers, *Maryland Agriculture Council*
- Dr. Joe Sullivan, *Associate Dean for Academic Programs, UMD College Park*
- Janna Howley, *Cultivate & Craft*

11am *K-8 Education*

- Tonya Wible, *Maryland Agriculture Education Foundation*
- Victoria Stone, *Maryland Agriculture Education Foundation*
- Chris Anderson, *Animal Science 4-H Specialist*

11:20am *School lunch programs*

- Beth Brewster, *Caroline County Public Schools*
- Cynthia Shea, *Baltimore City Public Schools*

11:40am *High School*

- Dr. Stacy Eckels, *Southern High School, AACPSS President, MATA*
- Leasa Gudderra, *FFA & MANRRS advisor, Gwynn Park HS, PGCPSS*
- Terrie Shank, *Maryland FFA, and Maryland State Dept. of Ed*

12pm *Lunch*

- Sponsored by MAEF, Horizon Farm Credit, Maryland Farm Bureau, Maryland Ag Teachers Association

Let's get some answers from our presenters

(+ lunch + discussion)

1pm *Higher Ed*

- Dr. Melissa Leiden Welsh, *Agriculture Science & Technology, UMD-CP*
- Stephan Tubene, Ph.D., *University of Maryland, Eastern Shore*
- Nicole Barth, *Chesapeake College, Wye Mills Campus*

1:20pm *Experience/Certifications/Apprenticeships*

- Jennifer Griffin and Pam Clay, *Maryland State Dept of Education*
- Molly Mesnard, *Governor's Workforce Development Board, Department of Labor*

1:40pm *Agritourism/Agri-education*

- Gerardo Martinez, *Wild Kid Acres, Anne Arundel County*
- Reneé Wilson, *The Farmyard, Baltimore County*
- Anne Litz, *Maryland Horse Industry Board*

2pm *Discussion / Q&A / Next Steps*

3pm *Adjourn*

THANKS FOR JOINING US TO

LISTEN
LEARN
DISCUSS

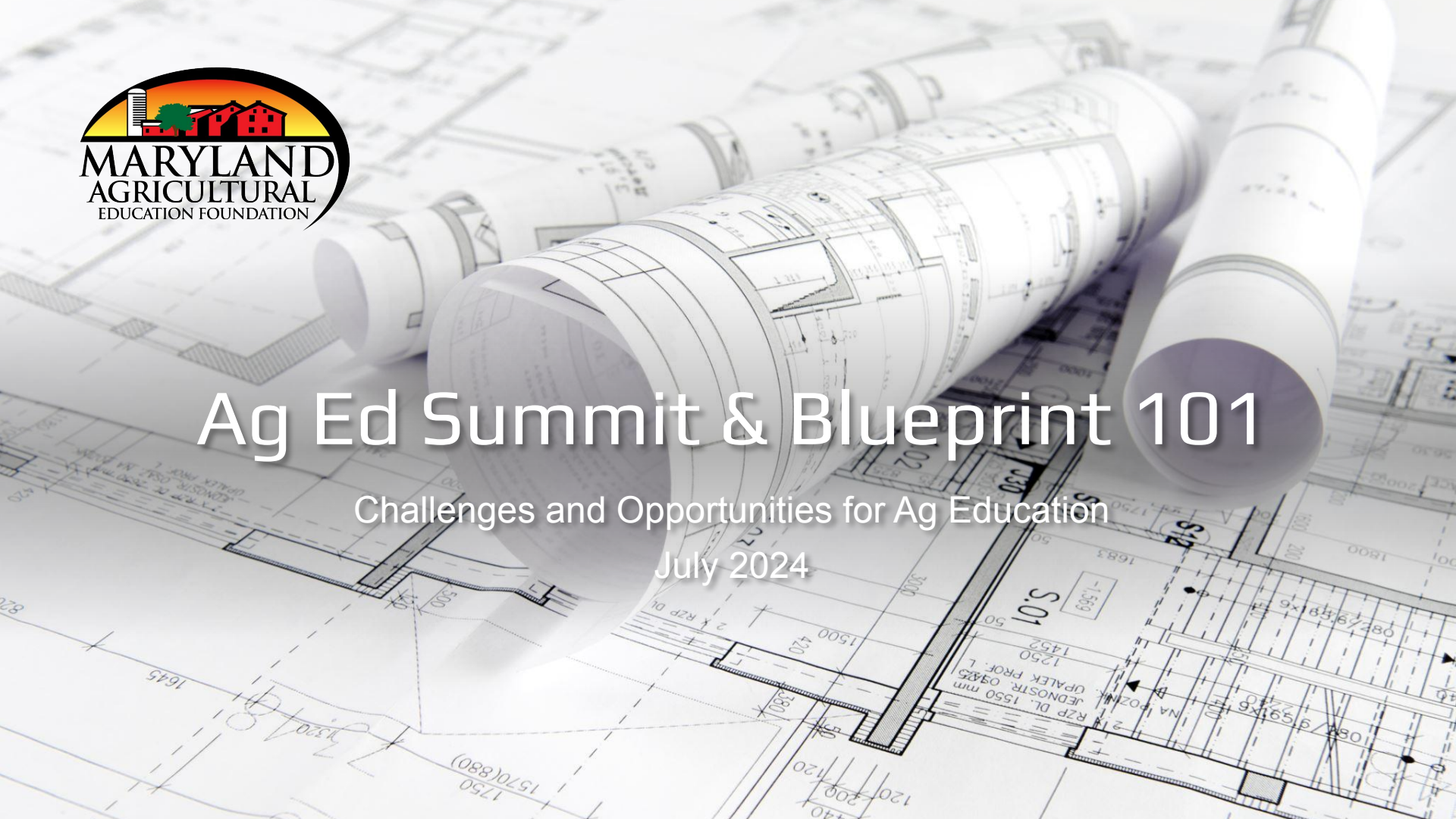
Thanks to our lunch sponsors

Horizon Farm Credit

&

Maryland Agricultural Education Foundation (MAEF)

ag EDUCATION SUMMIT



Ag Ed Summit & Blueprint 101

Challenges and Opportunities for Ag Education

July 2024

Keep In Mind:

- Agricultural Education: Preparing for a career in agriculture.

- Agricultural Literacy: Understanding and being able to communicate the value of agriculture.

Blueprint Background

2017-2019	2021	Today
Kirwan Commission Report>>>	Blueprint Legislation passed>>>	"Blueprint for Maryland's Future" is now law; phases in changes.

https://blueprint.marylandpublicschools.org/

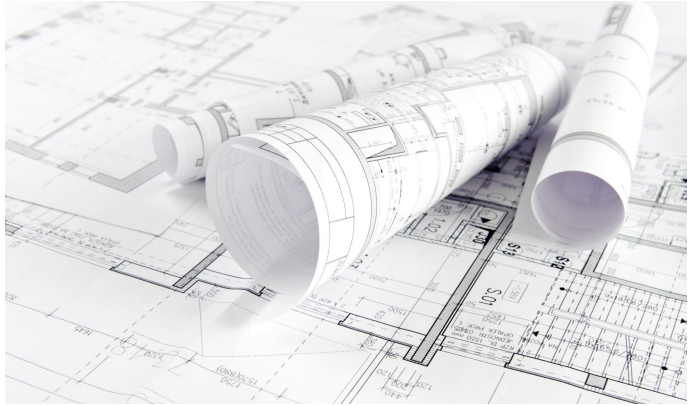
MAEF, the Maryland Ag Teachers Association, Maryland Farm Bureau and others have worked together to identify priorities for ideal Blueprint outcomes and promote solutions.

Five Pillars of the Blueprint

Pillar One: Early Childhood Education
Pillar Two: High Quality & Diverse Teachers & Leaders
Pillar Three: College & Career Readiness

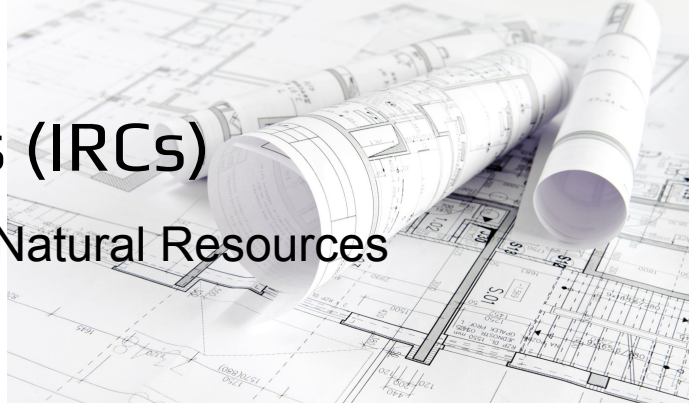
- All students are College and Career Ready by the end of their 10th grade year.
- New curriculum standards and expanded access to Career and Technical Education opportunities are implemented to ensure a world-class education system.
- 45% of all high school students earn an industry-recognized credential (IRC) or complete an apprenticeship by the 2030-31 school year.

Pillar Four: More Resources for Students to be Successful
Pillar Five: Accountability



MARYLAND AGRICULTURAL EDUCATION FOUNDATION

Industry-Recognized Credentials (IRCs)



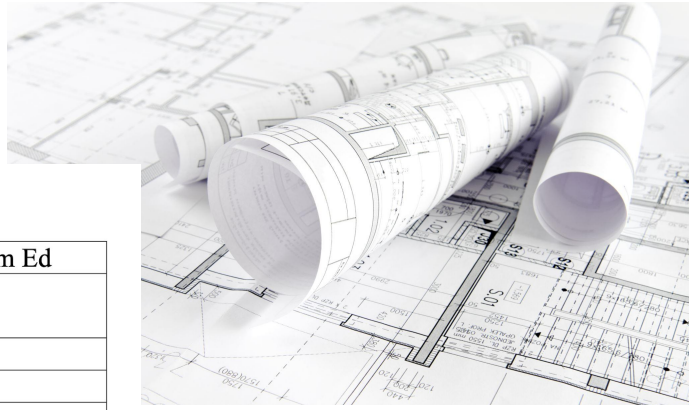
Current list has 6 for Environment, Agriculture & Natural Resources

- Certified Professional Horticulturalist (CPH)
- Chesapeake Bay Landscape Professional
- Registered Vet Tech (RVT)
- Certified Floral Designer
- Erosion & Sediment Control
- Small Engine Technology

Process: Starting in August, Local School Systems may apply for additional/other credentials.

MARYLAND AGRICULTURAL EDUCATION FOUNDATION

Three Component Model as an IRC



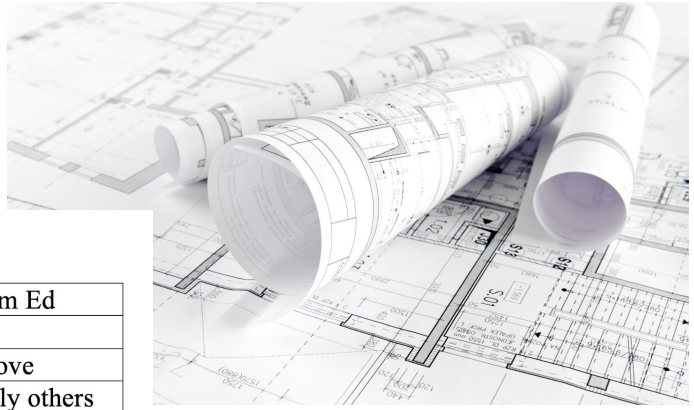
Industry Recognized Credentials (IRC)

IRC Criteria	FFA State Degree	SAE	Classroom Ed
Aligns with industry demand	Yes	Yes	Yes
Documented outcome	Yes – AET*	Yes – AET	Yes
Validated by industry	Yes	Yes	Yes
Assessment Based	Yes	Yes	Yes
Standards-Driven	Yes	Yes	Yes
Attainable and Accessible	2025-26	Yes	Yes
Portable	Yes	Yes	Yes
Stackable	N/A	Yes	Articulation credits
Renewable	N/A	N/A	For CPH, Yes, possibly others as well

*AET is the Ag Experience Tracker, a comprehensive, student-centered online dashboard which allows each student to individually track their educational experiences and document them. Support for this service is provided statewide by Maryland State Department of Education.

MARYLAND AGRICULTURAL EDUCATION FOUNDATION

Three Component Model as an Apprenticeship



Apprenticeships (AMP)

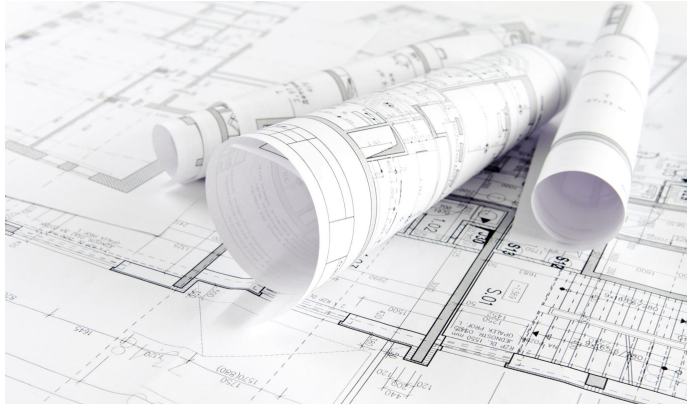
Criteria	FFA State Degree	SAE	Classroom Ed
Related instruction	Student choice	Student choice	Yes
IRC	See above	See above	See above
Credit toward IRC	See above	See above	CPH, possibly others
450 hours paid OJT	FFA Member for two years plus 25 hrs community service, parliamentary law, officer/chair and 6-minute speech	300 hours minimum	660-plus hours committed overall; 660 hours represents 144 hours/year plus SAE and FFA
Employer Involvement	N/A	Depends	N/A
Meaningful engagement of student/employer	N/A	Depends	N/A
Career Focused	Yes	Career and Entrepreneurial	Yes

MARYLAND AGRICULTURAL EDUCATION FOUNDATION

How you can help

We need you, as an industry, to step up and help, in several ways:

1. For the credentials and apprenticeship solutions to work, we need to show industry demand. Contact me.
2. For employers who may be able to sponsor an apprenticeship, please reach out so we can help you get to the right people to create your program.



MARYLAND AGRICULTURAL EDUCATION FOUNDATION

More Challenges and Opportunities:

- Local School District Autonomy: Most issues cannot be resolved by flipping a switch at Md. State Dept. of Education (MSDE). The LEAs have strong control over how schools are run, curriculum, etc. Instead of one call, there are 24 to be made.
- Agriculture teacher retention: Our teachers are under-compensated for the work they do. Support increased pay and show your appreciation for the work they do.

MARYLAND AGRICULTURAL EDUCATION FOUNDATION

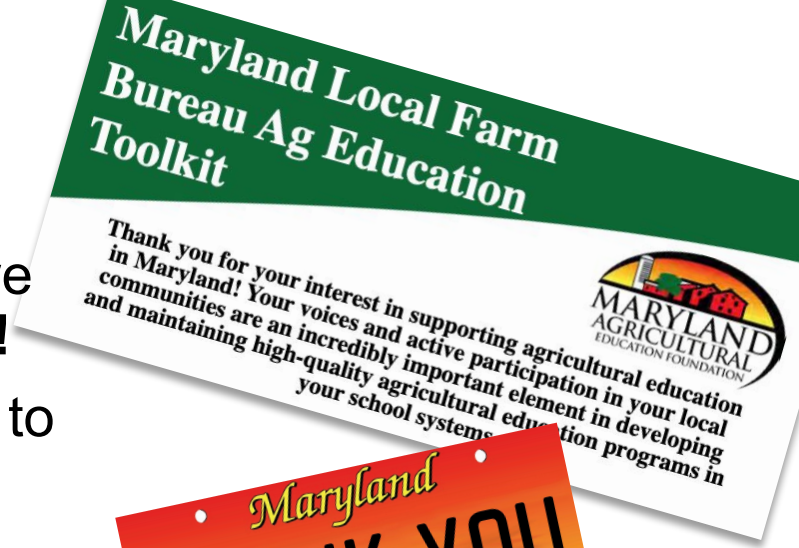
More Challenges and Opportunities:

- New methods and models are needed to deliver ag education to those who will work in ag-related industries, such as IT professionals, CDL drivers, HVAC techs and welders. Our “FarmBeats” program is a good example, pairing computer science students with ag students to work on tech in agriculture.
- Inaccurate employment data: “Farm jobs” and “farm-related jobs” are not counted properly, which makes us under-counted for employment and economic impact, and workforce needs. We are working on this!

MARYLAND AGRICULTURAL EDUCATION FOUNDATION

Final Thoughts:

- There is more work to be done than we could ever do alone, so **we need you!**
- Individuals or organizations who want to help can download our **“Toolkit”** and discover ways to help.
- We need to stand **united** as an industry. We are too small to divide ourselves further.
- Farmers still enjoy consumer trust, but promoting **ag literacy will improve policy and freedom to operate.**
- **Get an Ag Tag**!



MARYLAND AGRICULTURAL EDUCATION FOUNDATION

The College of Agriculture and Natural Resources
Who are we and what does AgEducation mean to us?

Maryland Agricultural Education Summit
July 16, 2024
Joe H. Sullivan

COLLEGE OF AGRICULTURE & NATURAL RESOURCES

FEARLESSLY FORWARD

AGNR's CORE mission – teaching, research and extension on all aspects of food systems and the environment including:

Sustainable Food Production

Healthy Food Systems – Global food and nutritional security

One Health – human, animal and environmental health

Healthy Watersheds – especially the Chesapeake Bay

Optimized Urban Environments though design, technology and community engagement

What does AGNR do in terms of AgEducation?

Prepares the next generation of Ag Teachers

Prepares the next generation of Leaders in all fields of Agriculture and the Environment

AND – in addition to our majors, we are the "Cornerstone" for the Land-Grant Mission of the University of Maryland – that mission simply put is to educate the population in areas of agriculture and the environment.

What does AGNR do in terms of AgEducation?

This mission goes BEYOND training folks in our primary career-based areas and INCLUDES:

Serving communities all over the State and beyond through the University of Maryland Extension (UME)

and

Educating students from all majors in topics of food and the environment: Ag Literacy

For Example, we offer each year

350 seats in Plant and Crop Science

150 seats in Soil Science`

110 seats in animal science

560 seats Environmental Science and Environmental Policy

260 seats on the Chesapeake Bay and environmental economics

900 seats in Nutrition and food safety

Over 2200 seats offered EVERY YEAR to education all students about food and the environment – **Ag Literacy for all is a part of AgEd**

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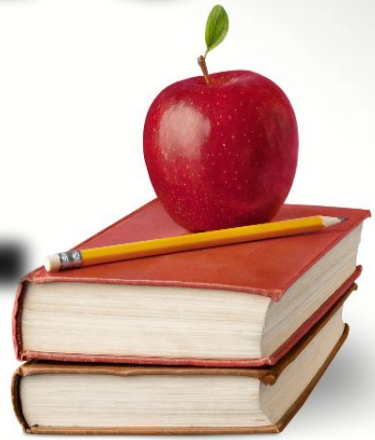

K-8 Ag Education in Maryland

Maryland Ag Education Summit 2024

Tonya Wible- MAEF Elementary Education Director

Victoria Stone- MAEF Middle School Education Director

Chris Anderson- UME 4-H Youth Development Specialist, Animal Science

Current state of Ag K-8

Agriculture

Current state of Ag K-8

Current state of Ag K-8

Agriculture

Current state of Ag K-8

Agriculture

Current state of Ag K-8

AG EDUCATION

- Usually formal
- Specialized curriculum with progression of lessons
- Focus on skillset acquisition that leads to a career
- Measured against educational standards and may result in certifications, diplomas, or degrees

AG LITERACY

- Often informal
- Lessons/activities blended into existing curriculum
- Focus on awareness/increased understanding of agriculture and its importance in daily life
- Measured against National Ag Literacy Outcomes (NALOs)

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MARYLAND AGRICULTURAL EDUCATION FOUNDATION

Current state of Ag K-8

Why is Ag Literacy important in Education?

Everyone eats. Everyone wears clothes. Everyone touches agriculture every day.

Students need opportunities to engage with their environment and community to make learning meaningful.

Agriculture gives context and meaning to learning concepts, in a hands-on & engaging way.

Crucial for students to understand their role & their community's role in the stewardship of our land.

Environmental literacy and agricultural literacy are two pieces of the same puzzle.

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MARYLAND AGRICULTURAL EDUCATION FOUNDATION

Current state of Ag K-8

Why is Ag Literacy important to Agriculture?

Everyone eats. Everyone wears clothes. Everyone touches agriculture every day.

In order to appreciate the people and processes involved in one of the biggest parts of their lives, students must interact with it.

Building an understanding of how their food & products get to them builds a greater appreciation for them and the people who work hard to provide them for us.

Today's students are the next generation to feed the world and promote stewardship of the land.

Before students can choose ag education and ag careers, they must first understand and appreciate agriculture and its importance.

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Current state of Ag K-8

In Classroom Programming

Direct - programming reach directly to students from ag professionals or volunteers

- MAEF Elementary Mobile Science Labs
- MAEF Ag Literacy Week
- MAEF Ag Story Trails
- 4-H Curriculums
- UME programs including Snap-ed Exploring MD Food curriculum, Master Gardener Grow it, Eat it!

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MARYLAND AGRICULTURAL EDUCATION FOUNDATION

Current state of Ag K-8

In Classroom Programming

Direct -

- Ag Awareness and Education Days
- Elementary Ag focused Charter Schools
- Middle School Ag Education classes
- Middle School Ag literacy units within subjects
- School system units that naturally infuse ag topics into their work
- Organizations, commodity group and ag business work

Junior Achievement

Anne Arundel County Farm Bureau — Celebrating 100+ Years

MAEOE — Maryland Association for Environmental & Outdoor Education

Maryland Farm Bureau

Farm Credit Horizon

College of Agriculture & Natural Resources

mpt

Career AGSperience

Cecil County Fair — At the Fair Hill Fairgrounds — Est 1954

swn — LeadAdvanceInnovate — Susquehanna Workforce Network

Junior Achievement of the Eastern Shore

Fair Hill Nature Center

Long Green Farms Inc. — Est. 1759 — Rising Sun, Maryland

Harford County Farm Bureau — 100 Years

Battelle — It can be done

Hopkins Farm Brewery — Havre de Grace, MD

Upper Shore Regional Council

Harford County — Bob Cassilly, County Executive

University of Maryland Extension

American Dairy Association North East — Your Milk Comes From a Good Place

Phillips Mushroom Farms

Maryland STEM Festival

Cecil County Public Library

Farm & Harvest

MAEOE

Sheriff's Office — Cecil County

Thinkport Education

New York Agriculture in the Classroom

FreshSource Farms

Fair Hill

AgFS — Agriculture & Food Sys

Harford County Public Schools — Inspire • Prepare • Achieve

Cecil Grown

AGsploration — The Science of Maryland Agriculture

Maryland Agricultural Education Foundation

FFA

John Deere

Atlantic Tractor

Queen Anne's County Public Schools — Where Our Future Begins

National Agriculture in the Classroom

Chesapeake Gold Farms

Maryland Dairy Princess Program

Boordy Vineyards

Maryland Association of Soil Conservation Districts

The Maryland State Fair

Cecil County Public Schools

Maryland SNAP-Ed

Cecil County Farm Museum — & Regional Agricultural Center

University of Maryland Extension — Family & Consumer Sciences

Current state of Ag K-8

In Classroom Programming

Indirect Work

- Educator workshops
- Resources
  - National Ag in the Classroom Lesson Matrix
  - MAEF resources
  - Ag Newsletters

Maryland 4-H
Agriculture Science

- Community 4-H Clubs
  - Animal Projects
  - Animal Exhibitions
- Knowledge-based Competitions
  - Quiz Bowls
  - Judging Contests
  - Skillathon Contests / Hippology
- Agriculture Literacy Events
- School Enrichment Activities
  - During School
  - After School
- Training for Faculty/Staff & Volunteers









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MARYLAND AGRICULTURAL EDUCATION FOUNDATION

Maryland 4-H
Agriculture Science

- ***AGsploration***: The Science of Maryland Agriculture
- ***AGsperience***: Agriculture Career Workforce Preparation
- ***Curbing Our Carbon Appetite:*** *National 4-H Ag Innovators Experience*
- ***Healthy Animals | Healthy YOUth:*** Zoonoses Education for Youth in Agriculture
- ***Veterinary Science Experience:*** Introduction to Veterinary Science

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MARYLAND AGRICULTURAL EDUCATION FOUNDATION

Current state of Ag K-8

CHALLENGES

- Not mandated, so included only by choice
- Number of students to be reached
- Connecting the Ag Lit "Players"
  - To each other
  - To educators

OPPORTUNITIES

- Increased Emphasis on Ag Literacy (using existing NALOs)
  - Increased presence in existing standards
  - Independent Ag Literacy standards
- Coordinated Effort & Collaboration Among Schoo & Ag Literacy Resources
  - School System Ag Literacy Coordinator
- Survey K-8 Ag Literacy Resources
- Develop & Promote Ag Literacy Resource Center to Educators
  - Lessons/Materials
  - Organizational Programs/Support

Current state of Ag K-8

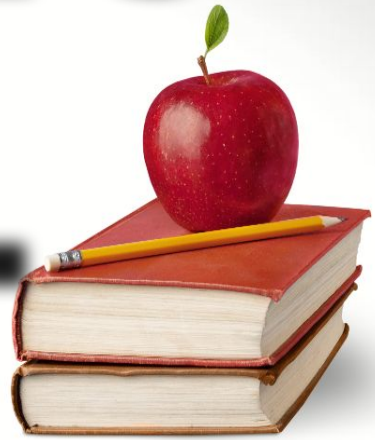
CHALLENGES

- Deficit of agricultural knowledge/ awareness among educators
- Insufficient awareness of the value of Ag Literacy within school systems
- Lack of familiarity of "out of school" Ag Literacy/Education opportunities and resources

OPPORTUNITIES

- Educate & Train the Educators
  - Create connections to ag literacy in pre-service college work
    - Ag Literacy Certification, using newly developed certification by NCAL, within college teacher education programs
  - Increased value to Ag Literacy Certification to existing teachers
- Showcase the importance of Ag as a context from which to teach core content
- Greater awareness of out of school Ag learning and experiences

EDUCATION SUMMIT



High School Agriculture Education

Dr. Stacy Eckels, Educator, Southern High School, Anne Arundel County Public Schools, Past- President of Maryland Agriculture Teachers Association

Leasa Gudderra, Educator, National FFA Teacher Ambassador & Minorities Agriculture Natural Related Resources advisor, Gwynn Park, Prince George's County Public Schools

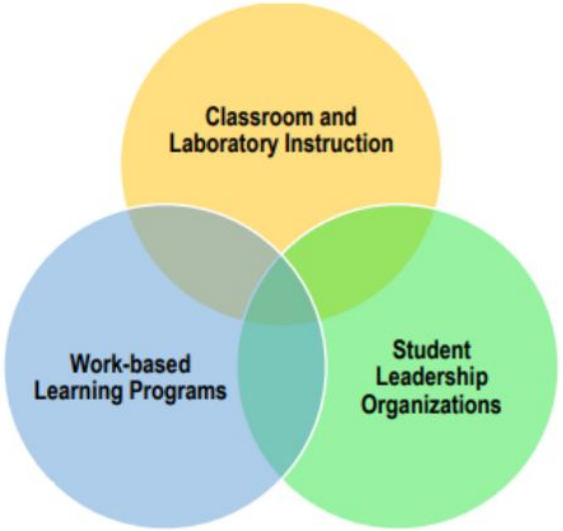
Terrie Shank, Executive Director, Maryland FFA, Assistant Director for High School Programs for the Maryland Agricultural Education Foundation, and Maryland State Department of Education

Current State of Maryland Agriculture Education in High Schools

- **55 Programs** in MD, **80 Agriculture Teachers** (total of **24 local school districts**)
- **90%** have FFA Chapters
- **Majority** of counties have an Agriculture Education program **at the Tech Center**
- Ag Ed prepares students for successful careers & lifetime of informed choices in the global agriculture, food, fiber & natural resources systems.
- Through Ag Ed, students are provided opportunities for leadership development, personal growth & career success.

Three Component Model

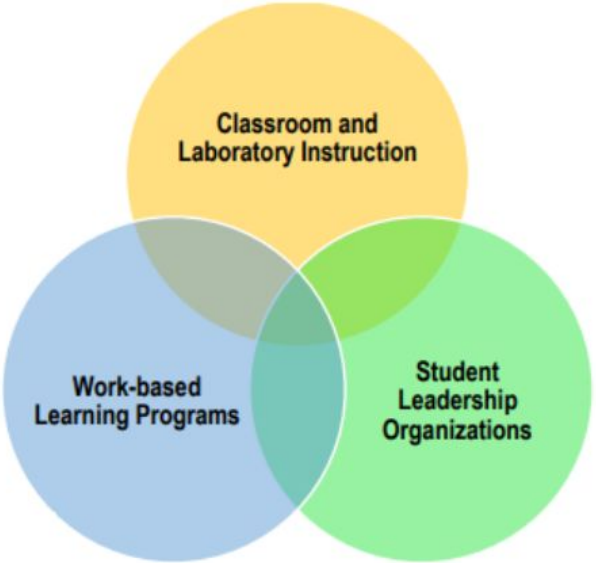
- Agricultural education instruction is delivered through 3 major components:
  - Classroom/Laboratory Instruction
  - AFNR Work-based Learning
  - Student Leadership Organizations
- These key components are often visually organized into a Venn diagram.
- Agricultural education programs uses all 3 components together for comprehensive student growth & development.



Three Component Model

Classroom and Laboratory Instruction

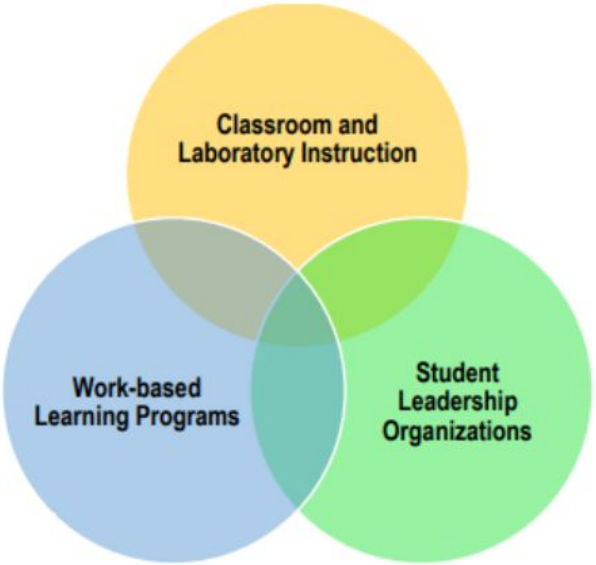
- Students work with qualified, experienced agricultural education teachers to develop skills, knowledge and attitudes required for gainful employment in occupations relating to Agriculture, Food & Natural Resources (AFNR).
- Programs of study may include courses from one or more recognized pathways in AFNR.



Three Component Model

AFNR Work-based Learning

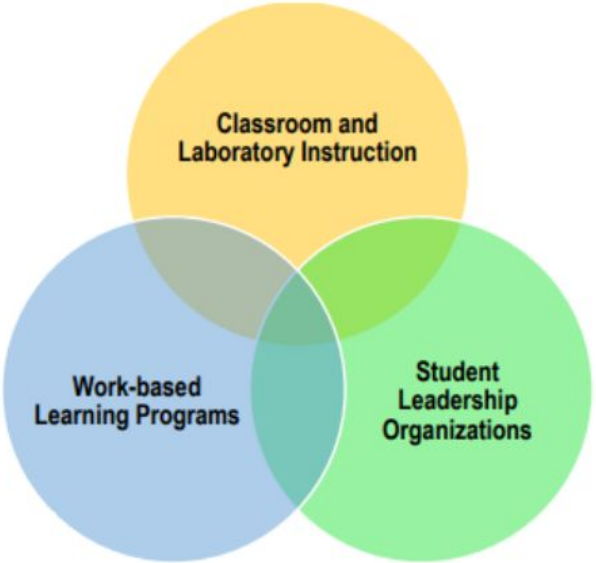
- Students work with ag ed teachers to plan, conduct, record & reflect on a Supervised Agricultural Experience (SAE) program. Experiences develop career & employability skills in alignment with the students' personal goals.
- SAEs are unique to each student & may be structured as a student business, school based enterprise, internship, or a research experiment/study.
- Experiences may be paid or unpaid based on local resources & opportunities.



Three Component Model

Student Leadership Organizations

- FFA chapters- team of student officers & a local FFA Advisor.
- Activities include chapter coordination, state & nationally affiliated conferences & conventions, competitive leadership events, & mentorship programs with designated alumni.
- The recognized Career & Technical Student Organization (CTSO) for Ag Ed programs in Maryland is the Maryland FFA.

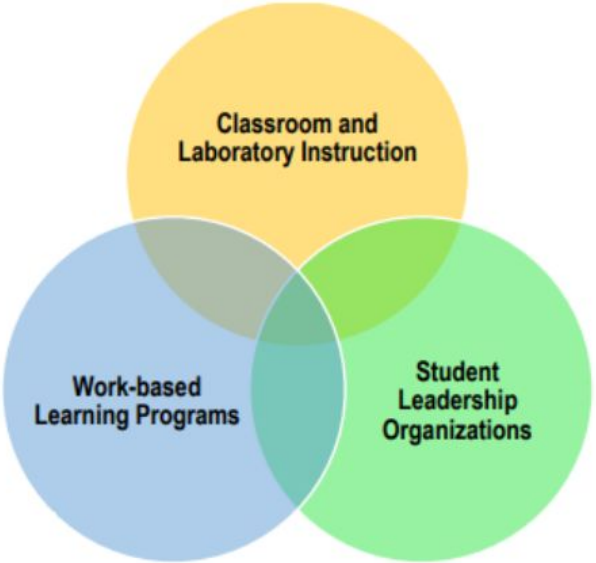


Three Component Model

The 3 Circle Model of the 3 components support each other:

- Knowledge gained in AG courses inform SAE program development
- Skills developed in SAE programs fuel inquiry during coursework.
- Achievement in classwork & SAE are incentivized through FFA award programs

All 3 components continually work in unison to develop the whole student.



Classroom Instruction

Curriculums in MD

- CASE- 18 LEA/31 Schools: Plant, Animal, Ag Power, Natural Resources & Environment, Biotechnology, Food Science, Research
- Locally Developed Programs- 6 LEA/24 Schools: include the above but additional Pre-vet, Small and Large Animal science courses, Horticulture, Greenhouse Management, Floral Design, & multiple levels of Natural Resources and Agricultural Mechanics courses.

CASE
Curriculum for Agricultural Science Education

MARYLAND
CERTIFIED PROFESSIONAL HORTICULTURIST

iCEV

2022-2023 SAE Impact

Total Hours Invested

108,623 hours

Direct Investment

$563,786

Economic Impact

$1,214,835 in Maryland

Areas of SAE that Students are Involved-

- 958 Student with Livestock Projects
- 226 in Plant Science
- 166- Natural Resources
- 101- Agriculture Power
- 96- Bio- Tech/ Food Science
- 91- Ag Business

FFA

50 FFA Chapters in High Schools in all Counties and Baltimore City.

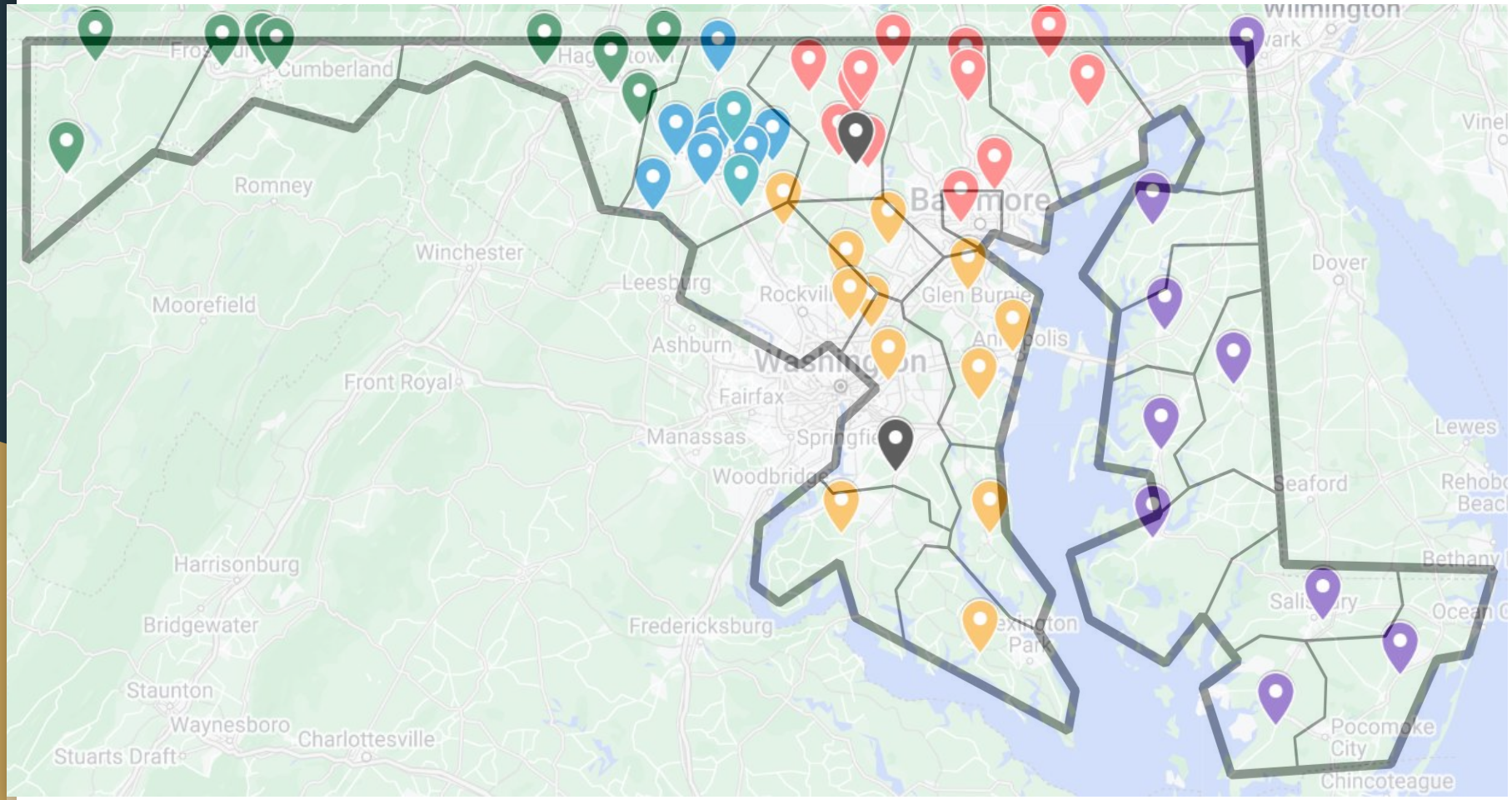
2 Chapters in Middle Schools. (Boonsboro & Hereford MS)

Intracurricular leadership program as on of the four Career Technical Student Organizations in Maryland.

Total of 3731 student enrolled in Ag Education Programs.

Membership- 2437 students in FFA. Starting in the 2025-26 school year all students enrolled in an Agriculture Education program will have membership in the FFA Organization.

65% of all agriculture students in Maryland our FFA members


Wilmington
Cumberland
Romney
Winchester
Moorefield
Front Royal
Harrisonburg
Bridgewater
Staunton
Waynesboro
Stuarts Draft
Charlottesville
Leesburg
Ashburn
Fairfax
Manassas
Woodbridge
Fredericksburg
Dover
Lewes
Seaford
Pocomoke City
Chincoteague

Minorities in Agriculture, Natural Resources, and Related Sciences

Junior MANRRS is a pre-collegiate **outreach program** of the **National Society of Minorities in Agriculture, Natural Resources and Related Sciences** (MANRRS) for high school-aged and younger students to expose them to career pathways and educational possibilities in the food, agricultural, environmental and related sciences.

Maryland has **two Collegiate chapters**

UNIVERSITY OF MARYLAND

UNIVERSITY of MARYLAND EASTERN SHORE

Historically UMES has held yearly institutes bringing minority youths to campus to experience agriculture and STEM career opportunities and has hosted the Maryland Youth Institutes which is part of the World Food Prize.

Professional Development for Agriculture Education

Maryland Agriculture Educators Conference

Career Technical Student Organization

EDUCATORS RISING MARYLAND

Maryland FBLA

SkillsUSA MARYLAND

Trainings for Agriculture educators is not the same as a regular classroom teacher. There are multiple counties that do not have trainings for this speciality area due to small numbers. Their need is for statewide trainings. CTSO, state teachers training and national trainings.

National Association of Agricultural Educators

National Agriscience Teacher Ambassador Program- The Academy serves to train agriculture teachers on how to enhance the science that is already present in agriculture, as well as develop students as problem solvers and thinkers through the inquiry-based teaching method.

Future Agriscience Teacher (FAST) Symposium The Future Agriscience Teacher (FAST) Symposium is a professional development experience for preservice agricultural education majors which provides customized professional development, networking, and mentoring with current and future agriculture teachers from across the country.

XLR8 - eXcellence in Leadership for Retention

A program for 7-15 year agriculture teachers consisting of sessions during NAAE convention and a peer cohort to help retain experienced teachers in agricultural education.

Trainings at National events such as NAAE, ACTE and National FFA Conventions.

Maryland Agriculture Teacher Supply and Demand Profile

2015-2023 Demand

Category	2015	2016	2017	2018	2019	2020	2021	2022	2023
Teachers FT/PT F/M/NB Alt Cert /Non-licensed New Hire origin IS/OS Moved schools Contract Days Starting Salary average African American Biracial Caucasian Hispanic Unknown Asian	78 78 44/34 3 1/2 20 N/A	77 76/1 45/32 0/4 0/3 20 43480	74 58/16 48/26 0/0 2/0 20 46000	75 66/9 45/30 0/0 0/3 20 45000	78 69/9 54/24 3/0 3 10 months 47,000 4 73 1	78 78/0 51/27/0 0/0 1/3 2 50 days 48,000 3 72 1	77 77/0 53/24/0 3/0 3/1 0 10 months 50,000 2 1 71 1	83 83/0 53/30/0 2/5 1/2 2 10 month 55,000 3 77 1 2	80 80/0 57/23/0 1/0 1/3 1 190 days 54,000 3 71 3 3
Programs New positions New programs Positions Lost Programs closed Positions to fill	59 2 0 1 1 11	56 1 1 2 2 7	52 1 0 1 1 12	55 0 1 0 0 6	58 4 3 0 0 7	54 5 4 1 1 11	52 4 4 2 2 8	48 1 5 2 1 6	54 2 1 1 9
Teachers who left SBAE	10 2 other subject area	8 4 other subject area 1 admin	13 1 ag business 2 admin	6 1 prod ag 2 other subject area	3 1 ag business	7 1 ag business 1 other subject area	6 1 ag business 1 prod ag	7 2 other ed content	8 2 ag business
	1 grad school 3 teaching ag out state 3 retirement 1 non-renewal	1 ag ed leadership 1 stay at home parent 1 retirement	1 other subject area 1 extension 2 teaching ag out state 5 retirements 1 non-renewal	1 admin 1 stay at home parent 1 non-renewal	1 post-secondary 1 teaching ag out state	2 teaching ag out state 1 stay at home parent 2 retirement	2 other subject area 1 post-secondary 1 teaching ag out state	1 teaching ag out of state 1 stay at home 2 retirement 1 non renewal	1 other ed content 1 admin 1 post secondary 1 grad school 2 retirement

2015–2023 Supply

Category	2015	2016	2017	2018	2019	2020	2021	2022	2023
Institutions reported	University of Maryland	University of Maryland University of Maryland-Eastern Shore	University of Maryland University of Maryland-Eastern Shore	University of Maryland University of Maryland-Eastern Shore	University of Maryland University of Maryland-Eastern Shore	University of Maryland University of Maryland-Eastern Shore	University of Maryland University of Maryland-Eastern Shore	University of Maryland University of Maryland-Eastern Shore	University of Maryland University of Maryland-Eastern Shore
Graduate completers	0	1 1 teaching another subject	1 1 ag business	1 1 teaching ag in state	1 1 teaching ag out state	1 1 other subject area	3 1 teaching ag in state 2 other subject	0	0
Demographics F/M/NB **African American** **Caucasian**		1/0 1	1/0	0/1 1	1/0 1	1/0/0 1	3/0/0 1	0/0/0 0	0/0/0 0

www.aaaeonline.org/Teacher-Supply-and-Demand
www.naae.org/teachag

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Ashley Rogers, National Association of Agricultural Educators arogers.naae@uky.edu

Thank you for allowing us this opportunity to share a view of high school agriculture education.

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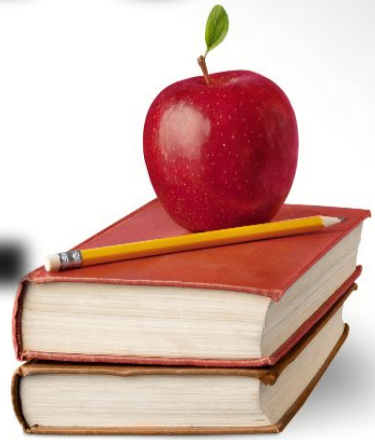
Leasa Gudderra - leasa.gudderra@pgcps.org

Terrie Shank - tshank@maefonline.com

EDUCATION SUMMIT



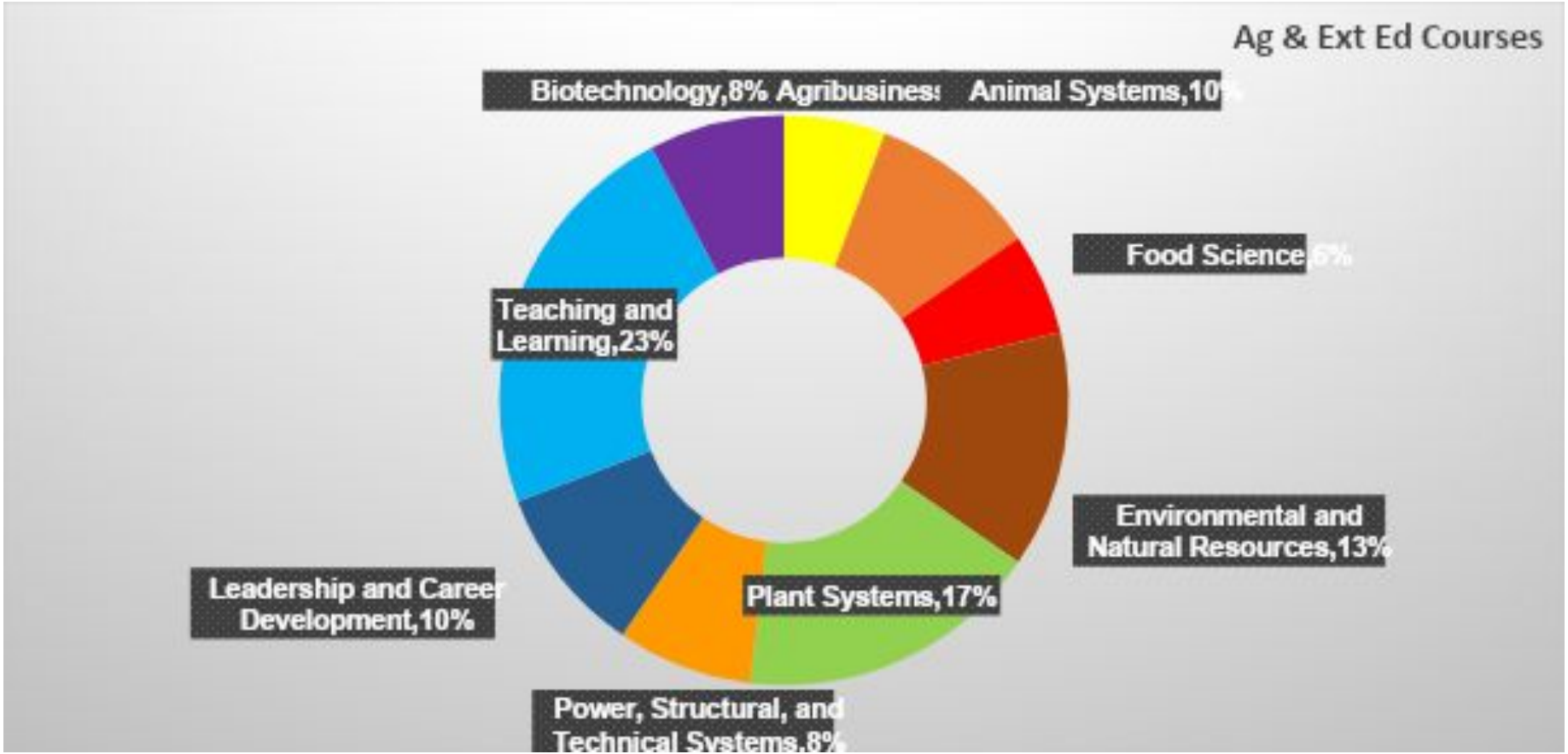
University of Maryland
Agriculture and Extension Education

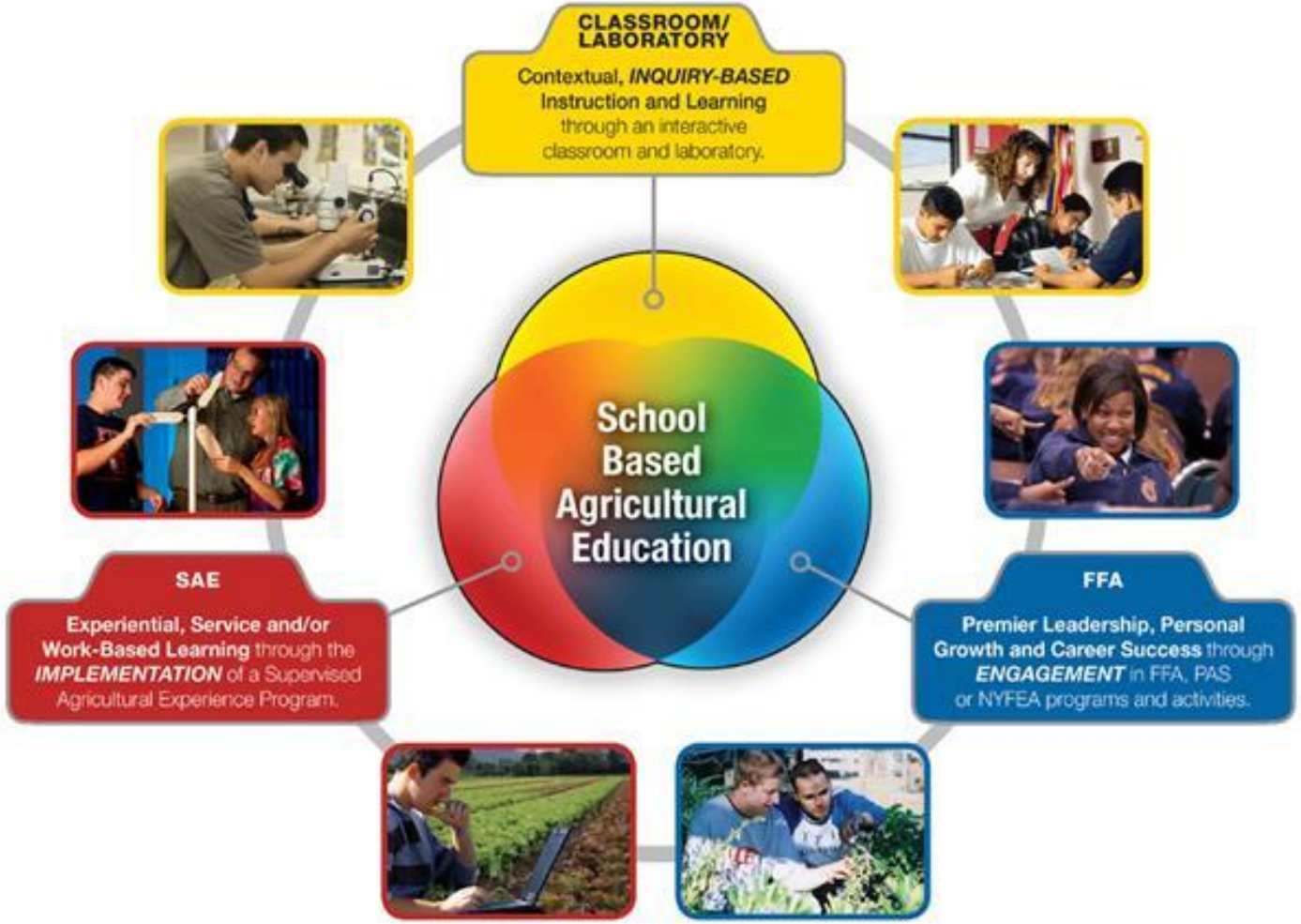
- Program closed with last listing in 1994-95 catalog
- 2008 collaboration between AGST (AGNR)/Secondary Science (COE) established
- 2015 Math and Science Education Terrapin Teachers
- Dr. Leiden Welsh hired Feb 2018
- December 6th, 2019 program revisions were approved **Agricultural Science and Technology Major : Specialization Agricultural and Extension Education** was established
  - Teacher certification route (Secondary Science Ed. Certificate)
  - Industry/ Extension route (non-formal education)
    - 1 year Master's Curriculum and Instruction (M.Ed.)
- <u>Officially listed in UG Catalog Fall 2020</u>
- Graduates (4- teacher certified) (3- I/E)
- Enrollment 6-10 students/ semester

University of Maryland
Agriculture and Extension Education

- 2019 survey (Extension, Ag Ed stakeholders)
- New courses AGST Analysis of MD Ag Fall 2021
- April 16, 2021 Board of Regents approved **Master of Extension Education**
- Officially listed in Graduate catalog Spring 2022
- Graduates Fall 2023 (1) Spring 2024 (2)
- New faculty hire: Dr. Colby Silvert Fall 2023

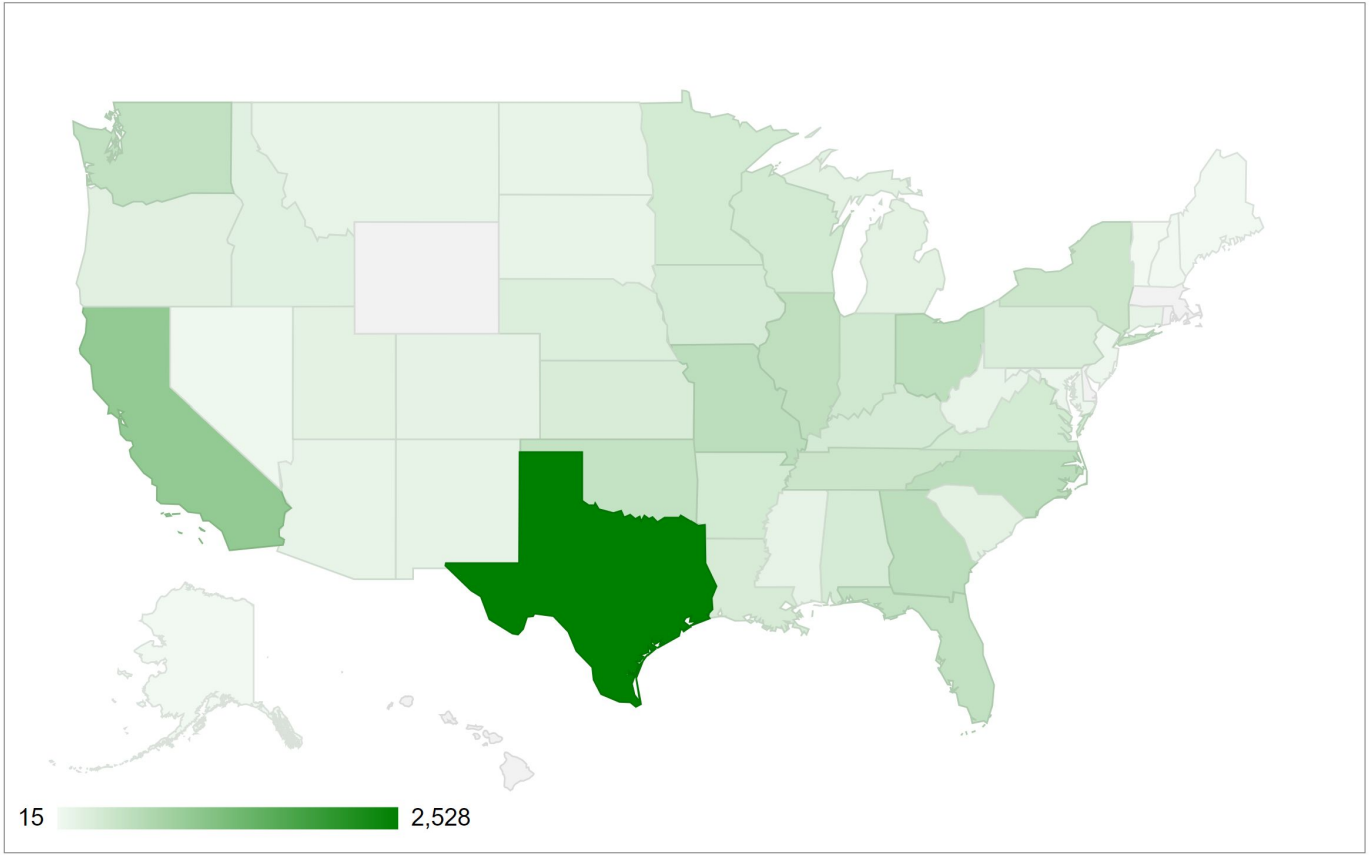
Coursework to Prepare Future Teachers




CLASSROOM/ LABORATORY
Contextual, INQUIRY-BASED Instruction and Learning through an interactive classroom and laboratory.
School Based Agricultural Education
FFA
Premier Leadership, Personal Growth and Career Success through ENGAGEMENT in FFA, PAS or NYFEA programs and activities.
SAE
Experiential, Service and/or Work-Based Learning through the IMPLEMENTATION of a Supervised Agricultural Experience Program.

Teachers by State (demand) - Year: 2023

(Number of Public schools 9-12 grade, 2023, NCES)



NY – 410 (847)

OH – 557 (620)

PA – 266 (502)

MD – 80 (199)

NJ – 61 (405)

DE – NR (32)

WV – 112 (110)

VA – 335 (285)

NC – 580 (420)

Strengths

- Multiple pathways to learners' desired career preparation
- Maryland -National STAR team member (2023)
- Courses taught by content experts in their field
- Ag Ed students work with Dr. Welsh on day 1
- Student teaching interns opportunity network MD Ag teachers- day 1
  - Free membership in MATA
- Network of Math and Science peers in Terrapin Teachers program
- Practicum experiences in various coursework each year

Challenges

- Alternative programs certifying teachers- missing the 3 circle model preparation
- MD Ag Teaching Certificate, 9-12 (limited)
- Recruitment- supportive info/counselors at schools
- Difficulty of transfer students into programs
  - Myth of all college credits count
  - Fall/Spring courses out of sync when some enter program
- MD Ag Ed Faculty ratio compared to neighboring states (PA, WV, VA, NC)
- Ag Education- challenging career field with low income compared to high tech Ag career fields

Agricultural and Extension Education Faculty/Staff

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Agricultural and Extension Education

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Coordinator
Graduate Extension Education

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Saratu Samaila
Administrative Assistant

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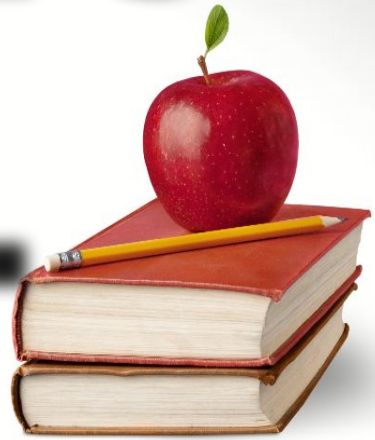
EDUCATION SUMMIT



School of Agricultural and Natural Sciences

HBCU 1886

UNIVERSITY OF MARYLAND EASTERN SHORE

Improvements needed to better educate college students about agriculture

Stephan Tubene, Ph.D.
Professor and Chair
Department of Agriculture, Food, and Resource Sciences

Agriculture Education Summit
Maryland Department of Agriculture
Southern High School
4400 Solomons Island Road
Harwood, MD 20776

July 16, 2024

Agriculture Education Summit

UNIVERSITY OF MARYLAND EASTERN SHORE

Presentation Outline

- U.S. Agriculture education challenges and opportunities
- The role UMES plays educating students in agriculture

U.S. Agriculture Education Challenges

- Science capacity in the Food, Agriculture, Natural Resources, and Human Sciences (FANHS) is at risk at a time of critical need (APLU, 2009)
  - In the U.S., between 2020 and 2025, the number of new college graduates annually seeking employment opportunities in FANHS will remain strong (approx. 59,400), representing a growth of 2.6% (NIFA, 2020)
  - But there is an annual deficit of nearly 40% and more so among minority graduates.
  - The widening gap between available capacity and need is in part due to many tenured faculty members reaching retirement age.
  - There is a lack of investment in science and math education
  - Globally, the issues of population pressure, hunger, and climate change will continue to heighten the demand for innovative complex

U.S. Agriculture Education Opportunities

UNIVERSITY OF MARYLAND EASTERN SHORE

- Need for Investment in Human Capacity Development (APLU, 2009; USDA, 2022)
  - Globalization is impacting the future workforce in FANHS: Students will need to develop a portfolio of skills in collaborative and interdisciplinary approaches, and be able to comprehend increasingly complex systems models with global effects.
  - Engagement of institutions of higher education, agribusiness, and public-funded agencies is needed to define and create initiatives in problem-based learning.
  - The rate of investment in human capacity development in FANHS has lagged behind investment in the creation of new knowledge, resulting in an increasing gap between discovery and implementation.

U.S. Agriculture Education Opportunities – Cont.

- Educational programs are seeking to be more relevant than ever, but the increasing separation between discovery and the classroom has left curricular development behind.
- Demographically, there is a disproportionately low participation by certain groups in FANHS at all levels, including workforce, management, professional, and executive levels—especially scientists, extension staff, and educators. This has resulted in programs that are not as robust and relevant as they must be to have broad implementation and impact.
- Fewer students are pursuing agriculturally related sciences in higher education than required to meet future needs—especially to provide worldwide leadership

Role of UMES Educating Students in Agriculture

UNIVERSITY OF MARYLAND EASTERN SHORE

- Tripartite mission of the Land-Grant University (LGU) fulfilled by SANS through three Departments: Agriculture; Natural Sciences; and Human Ecology.
- Dept. of Agriculture, Food, and Res. Sciences
  - Undergraduate Programs

    Agribusiness Management
    Urban Forestry
    General Agriculture
    - Agricultural Education
    - Plant and Soil Science
    - Animal and Poultry Science
      - Business and Technology Option I
      - Pre-Veterinary/Pre-Professional Option II
    - Agricultural Studies
  - Graduate Programs

    Food and Agricultural Sciences (M.S. and Ph.D.)

Role of UMES Educating Students in Agriculture – Cont.

UNIVERSITY OF MARYLAND EASTERN SHORE

- Following APLU recommendations:
  - Increase supply of trained graduates in the Food and Agricultural Sciences: Inspire, Insure Access, and Enhance Academic Capacity of Students from all groups to excel in the Agricultural and Natural Resources Sciences (K–12, Community College, and Higher Education Systems):
    - ✔ Summer students programs
    - ✔ Maryland Youth Institute (Borlaug Dialogue)
    - ✔ MANRRS programs; Recruitment strategies
    - ✔ USDA Next Gen program
    - ✔ International experiential learning programs
    - ✔ Others: scholarships, SANS centers, etc.
  - Enhance Human Capacity Development: Integrate Research and Extension Engagement into the Undergraduate Experience.
    - ✔ Undergraduates involvement in research
    - ✔ Service learning through integration with

Role of UMES Educating Students in Agriculture – Cont.

UNIVERSITY OF MARYLAND EASTERN SHORE

- Following APLU recommendations:
  - Renew the Academy: Address the Needs for Doctoral-level Professionals in the Food, Agriculture, Natural Resources, and Related Sciences.
    - ✔ Some Ph.D. programs in FANHS implemented
    - ✔ P&T review that integrates teaching, research, and extension
    - ✔ [Needs: Initiatives to renew the academy (specific NSF programs – ADVANCE, CAREER, etc.); Programs that prepare future faculty]
  - Expand Learning and Engagement: Leverage Information, Communications and Instructional Technology
    - ✔ Implementation of new technologies that enhance learning in FANHS
    - ✔ [Needs: Distance delivery of courses and programs across institutions; infrastructure

Thank you!

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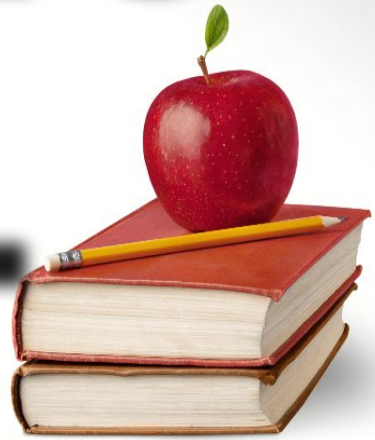
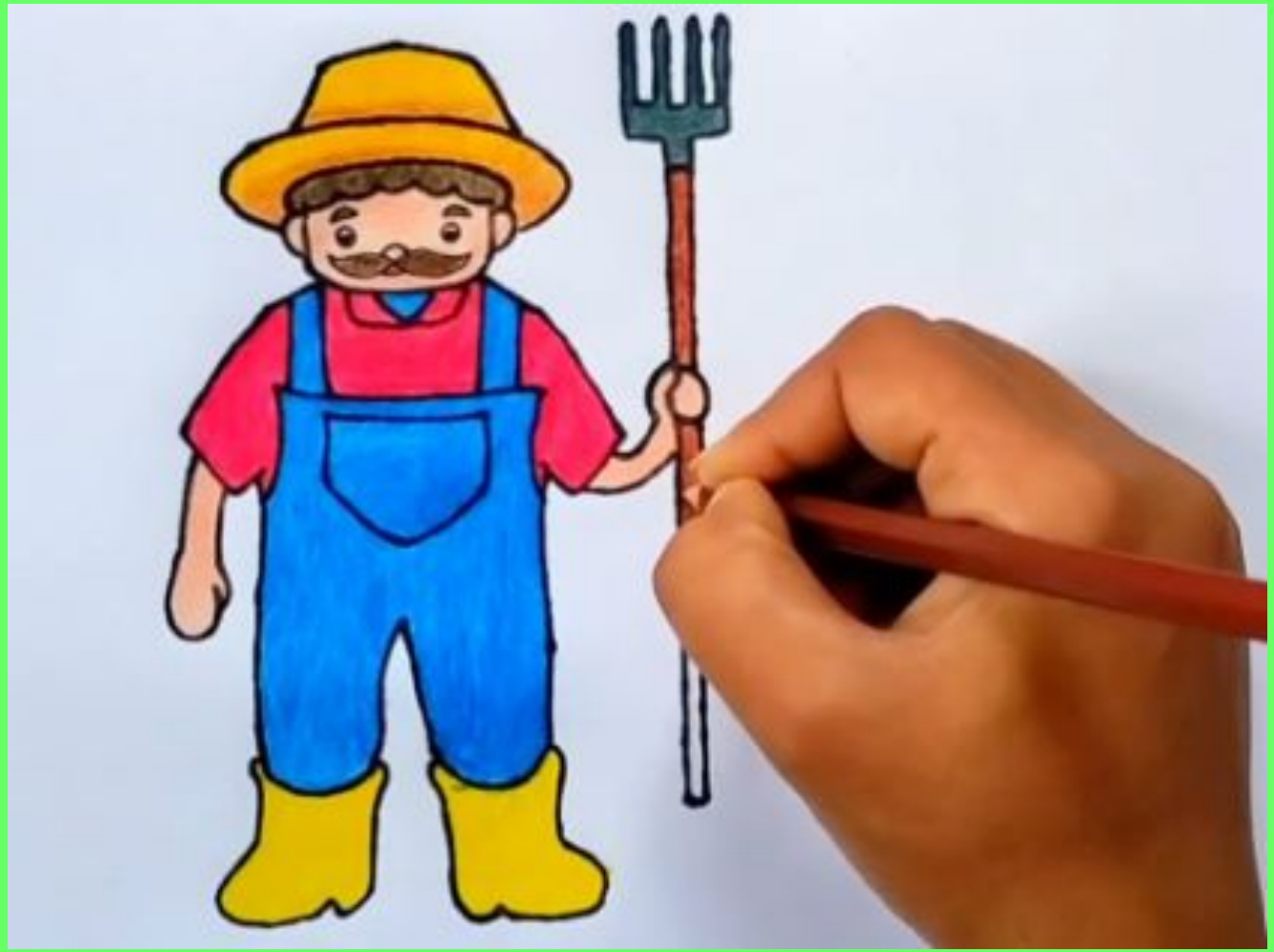
EDUCATION SUMMIT



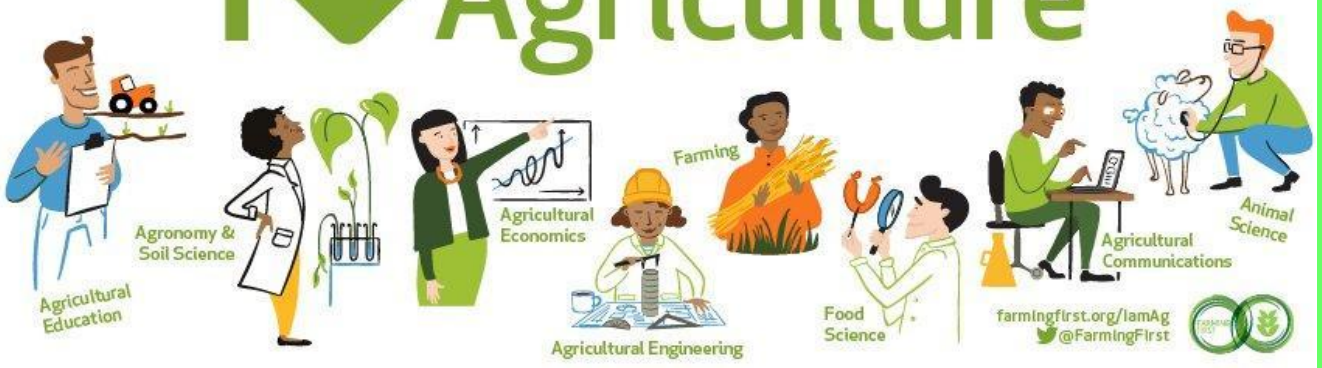
Agriculture Program at Chesapeake College

CHESAPEAKE
COLLEGE

Draw a picture of someone who works in Agriculture.

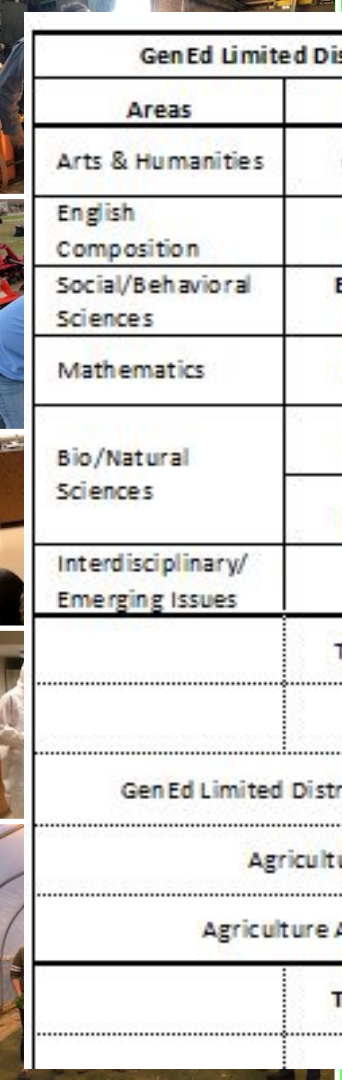


I ♥ Agriculture



Agriculture Program

Associate of Applied Science - Agriculture
Liberal Arts & Science: Agriculture Concentration



GenEd Limited Distribution Core		
Areas	Courses	Credits
Arts & Humanities	COM 101	3
English Composition	ENG 101	3
Social/Behavioral Sciences	ECN 171 or ECN 172	3
Mathematics	MAT 113	3
Bio/Natural Sciences	BIO 105	4
	CHM 121	4
Interdisciplinary/ Emerging Issues	----	0
	Total Credits:	20

GenEd Limited Distribution Core	20
Agriculture AAS Core	24
Agriculture AAS Electives	16
Total Credits:	60

Agriculture AAS Core		
Areas	Courses	Credits
Introduction to Agriculture	AGR 101	3
Soil Science	AGR 113	4
Introduction to Animal Science	AGR 220	4
Vegetable & Crop Production	AGR 230	4
Introduction to Agribusiness	AGR 223	3
Special Topics in Agriculture	AGR 240	3
Career Planning and Preparation	CPL 105	1
Cooperative Work Experience	CPL 281	2
	Total Credits:	24

Agriculture AAS Electives		
Areas	Courses	Credits
Agricultural Marketing	AGR 115	3
Introduction to the Food System	AGR 120	3
Agricultural Mechanics	AGR 201	3
Intro. to Agricultural Economics	AGR 213	3
Integrated Pest Management	AGR 214	3
Principles of Biology II	BIO 113	4
General Botany	BIO 204	4
General Zoology	BIO 206	4
Environmental Science	SCI 151	4
Introduction to Sustainability	SUS 101	3
Fundamentals of Welding	WEL 108	3
	Total Minimum Credits:	16

Agriculture Program

Provide students with hands-on experiential learning opportunities

Agriculture Program

Agriculture Learning Center

- High tunnel
- Greenhouse
- Small vineyard
- Sub-compact tractor





Agriculture Program

Agriculture Learning Center

- Composting area
- Hydroponic system

Agriculture Program

Agriculture Learning Center

- Raised beds
- Pre-fabricated building for food storage and packaging





Agriculture Program

Agriculture Learning Center

- Commercial Fridge & Freezer
- Tower Garden

Made possible by grant money

- Perkins
- MAERDAF
- Farm Credit Foundation
- AIG Grants Chesapeake College

Agriculture Program

Focus is diversifying a farming operation

Attract new & beginning farmers

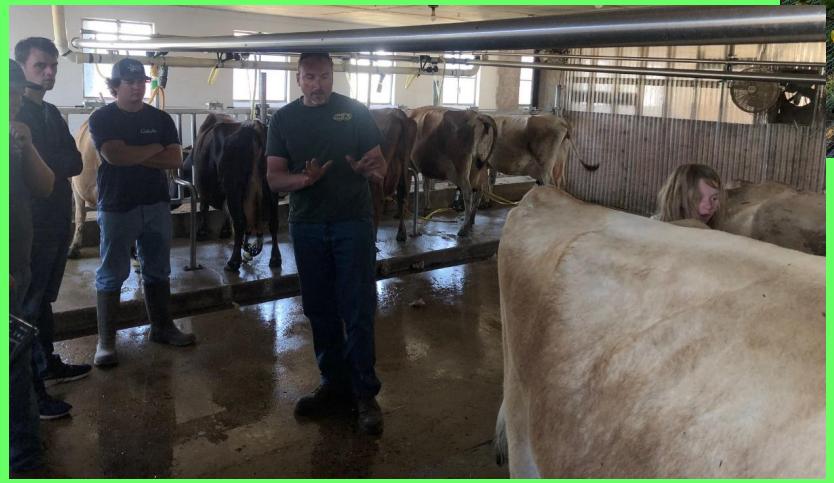
Agriculture Program

Strengths:

Community Partners

Hardworking Students

Dedicated Faculty







Agriculture Program

Challenges

Time – many responsibilities advising, teaching, marketing, watering plants, pulling weeds…

Funding



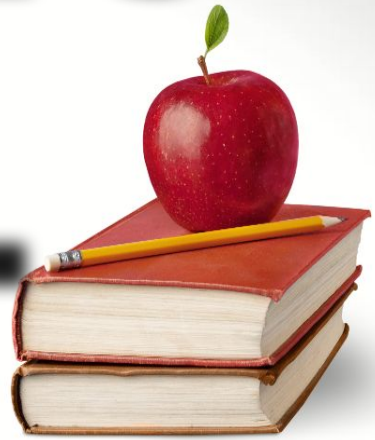


Agriculture Program

“The farmer has to be an optimist or he wouldn't still be a farmer.”
– Will Rogers

CHESAPEAKE
COLLEGE

EDUCATION SUMMIT



Maryland
GOVERNOR'S WORKFORCE DEVELOPMENT BOARD

Maryland
STATE DEPARTMENT OF EDUCATION

Career & Technical Education

Agriculture Education Summit | July 16, 2024

The Blueprint for Maryland's Future

PILLAR 1	EARLY CHILDHOOD EDUCATION
PILLAR 2	HIGH-QUALITY AND DIVERSE TEACHER & LEADERS
PILLAR 3	COLLEGE AND CAREER READINESS
PILLAR 4	MORE RESOURCES FOR STUDENT SUCCESS
PILLAR 5	GOVERNANCE AND ACCOUNTABILITY

CTE Committee Members

The CTE Committee is composed of the following members of the Governor's Workforce Development Board:

1. State Superintendent
2. Secretary of Higher Education
3. Secretary of Labor
4. Secretary of Commerce
5. CTE Skills Standards Advisory Committee Chair
6. 6 members (*jointly selected by the Governor, Senate President, and Speaker of the House*) who collectively represent:
    a. Employers
    b. Industry or trade associations
    c. Labor organizations
    d. Community colleges
    e. Agricultural community
    f. Experts in CTE programming

Blueprint Goals

These goals define the transformative change that AIB and state and local education leaders and stakeholders are working to accomplish for Maryland students, educators, and communities through the Blueprint's implementation.

- *AIB Updated Comprehensive Implementation Plan, August 2023*

1

Increase in the rate of students—
and reduction of gaps among student groups—
entering kindergarten who are on track to successfully
graduate on time and move on to postsecondary education,
training or well-paying jobs by FY 2032

2

All Maryland students
graduate CCR by FY 2032

3

Achievement gaps are reduced if
not eliminated across all grades and
student groups and LEAs by FY 2032

4

Participation in post-CCR pathways increases equitably
across all student groups, and 45% of high school graduates
earn valuable CTE industry credentials or complete high school
level of registered apprenticeship by FY 2032

5

Remediation rates in Maryland community colleges
across all student groups and colleges
are reduced by FY 2032

Industry-Recognized Credentials | Scope

The GWDB CTE Committee and MSDE have worked together to coordinate development of one shared list of approved IRCs that both MSDE and the CTE Committee will recognize, in accordance with the CTE Committee's new definition and criteria. The following definition, core criteria, application process, and list of State-approved IRCs will be recognized for the purposes of:

Blueprint

CTE Committee's oversight of progress toward the Blueprint's 45% goal; and

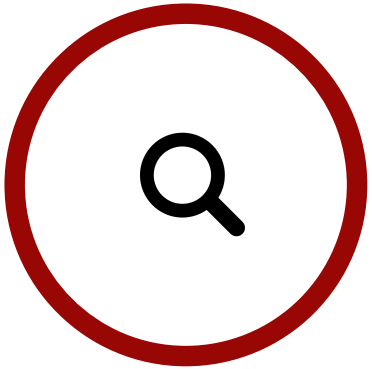
Perkins

MSDE's approval of post-College and Career Readiness pathways and for federal Perkins V funding of programs.

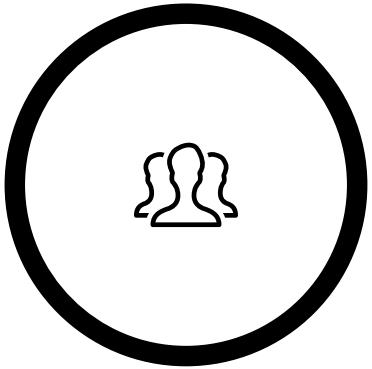
Future Considerations

Explore and refine the application of the IRC definition and criteria in other settings in addition to/outside of high school programs.

Industry-Recognized Credentials | Development

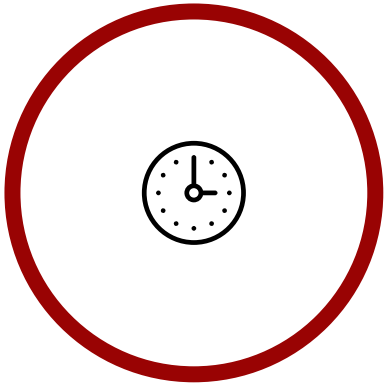


LANDSCAPE ANALYSIS



STAKEHOLDER ENGAGEMENT

UPDATED POLICY, APPROVED LIST, PROCESS



PHASED APPROACH

An industry-recognized credential (IRC) is a formal validation of an individual's skills and/or competencies that align with state or regional in-demand occupations and is recognized by industry and employers. It may be a certification, license, or credential that is obtained through an assessment process, is portable, and may be stackable. The IRC leads to documented positive employment outcomes, ensures relevance in the labor market, and supports career advancement and economic development for credential holders.

Industry-Recognized Credentials | Core Criteria

1. **Aligns with In-Demand Occupations**
   The credential is associated with occupations that are in high demand or emerging within Maryland as defined by the Governor's Workforce Development Board (GWDB) using state labor market data and employer feedback, or as defined as a regional need or emerging credential by the Local Workforce Development Board.

2. **Provides Documented Outcomes**
   There is evidence of positive employment and wage outcomes for individuals who have obtained the IRC, demonstrating its effectiveness in contributing to workforce readiness and economic advancement.

3. **Validated by Industry**
   The credential is recognized by multiple employers within an industry sector and is developed or endorsed by industry associations when applicable, ensuring its relevance and value in the job market.

4. **Assessment-Based**
   The credential is awarded upon successful completion of an assessment process that may include written, oral, or performance evaluations, demonstrating the individual's mastery of specific knowledge, skills, and abilities required for a particular occupation or skill area.

Industry-Recognized Credentials | Core Criteria

5 **Standards-Driven**

The credential is based on industry-accepted standards for skills and competencies, ensuring that it reflects the current needs and practices of the relevant industry.

6 **Attainable and Accessible**

The credential is attainable by high school students through secondary, postsecondary, or other training programs and is accessible to a wide range of learners, including special populations, to support equity and inclusion in access to attainment of industry-recognized credentials.

7 **Portable**

The credential can support employment in more than one region of the state and, where applicable, outside the state.

preferable

8 **Stackable**

The credential can:

- be transferred seamlessly to postsecondary work through acceptance for credit or hours in core program courses at an institution of higher education;
- be counted toward hours in an aligned Registered Apprenticeship program; or
- be part of a prescribed coherent sequence of industry-recognized credentials that show progressive skill development and qualify credential earners for professional advancement within their industry

9 **Renewable**

Where applicable, the credential is renewable, requiring holders to engage in continuous learning or re-assessment to maintain the credential's status and relevance.

Industry-Recognized Credentials | Completion

Credential is awarded to the student upon successful completion of an assessment process that may include written, oral, or performance evaluations before they graduate high school.

When the collective college credit earned in high school can be applied toward a specific postsecondary certificate or degree that is recognized by the industry for a specific occupation and meets the IRC criteria as defined in this policy.

Completion of a pre-apprenticeship program that has been approved for registration of a certification that meets the IRC criteria as defined in this policy.

Industry-Recognized Credential | Application Process

Date	Description
August 1	Online application for new industry-recognized credentials to be assessed **opens**. ➔ *Credentials unique to local demand: Local applications for credentials unique to local workforce needs must be verified by the LWDB in partnership with the LEA*
October 31	Online application for new industry-recognized credentials to be assessed **closes**.
November	MSDE reviews each submission for completeness and follows up with requesting entities to gather any additional information needed.
December	MSDE prepares submission packages for each IRC application meeting application requirements, including a recommendation to **approve** or **not approve**. All packets and recommendations will be sent to CTE Committee staff by December 31st for review by the full CTE Committee.
January	CTE Committee will vote to **approve** or **not approve** each IRC package provided by MSDE. Once a formal determination is made, MSDE will notify the requesting entity of the status. Each approved IRC will be added to the state-approved IRC roster on July 1st for use in the upcoming school year.
February	MSDE and the CTE Committee will publish the annual State-Approved Industry-Recognized Credential list for use in the upcoming school year.
July 1	The State-Approved Industry-Recognized Credential list goes into effect for the upcoming SY
Biennial Review Aug-Nov	Each August-November on even-numbered years, starting in 2024, MSDE and the CTE Committee review the IRC list to ensure that each credential remains relevant and meets standards.

Industry-Recognized Credentials | Agriculture

Approved Agriculture Credentials

Career Cluster	Credential Name	Issuing Entity
Environmental Agricultural and Natural Resources	Animal Science Specialist certification (AEST)	Agriculture Education Services & Technology Inc. (AEST)
Environmental Agricultural and Natural Resources	Certified Floral Designer	American Institute of Floral Designers (AIFD)
Environmental Agricultural and Natural Resources	Certified Professional Horticulturist (CPH)	Maryland Nursery, Landscape and Greenhouse Association, Inc.
Environmental Agricultural and Natural Resources	Chesapeake Bay Landscape Professional Exam Level 1	Chesapeake Bay Landscape Professional (CBLP)
Environmental Agricultural and Natural Resources	EETC Principles of Small Engine Technology	Engine & Equipment Training Council (EETC) through iCEV

Industry-Recognized Credentials | Agriculture

Approved Agriculture Credentials (Continued)

Career Cluster	Credential Name	Issuing Entity
Environmental Agricultural and Natural Resources	Erosion and Sediment Control	Maryland Department of the Environmental (MDE)
Environmental Agricultural and Natural Resources	ESRI ArcGIS Desktop certification	ERSI Academy
Environmental Agricultural and Natural Resources	Geographic Information System (GIS) certification	Digital Quest
Environmental Agricultural and Natural Resources	Maryland Registered Veterinary Technician (RVT) License	Maryland Department of Agriculture

Apprenticeships

- The “high school level of a Registered Apprenticeship” will be defined as completing the high school portion of a Registered Apprenticeship before graduation.
- Consider opportunities outside the traditional space
- Current tools and recommendations to expand apprenticeship

Tools to Expand Apprenticeship

- CTE programs providing the related instruction (RI)
- LEAs award credit toward a high school diploma for on-the-job training (OJT) and RI
- Perkins may be used to support
- Age does not impact worker compensation rates
- Funding opportunities:
  - Apprenticeship Grants
  - Maryland Tax Credit for Eligible Apprentices
  - Local Workforce Development Boards
- Full-time State staff available to assist with creating and expanding programs
- Hazardous occupation exemptions

Contact Information

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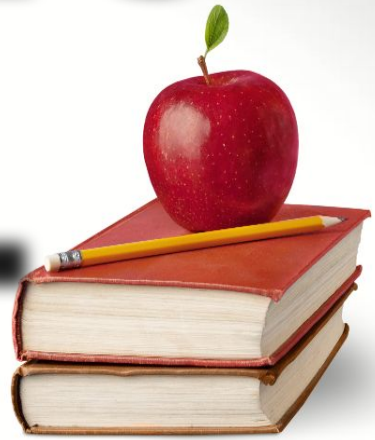
To learn more:

- CTE Committee Homepage
- IRC Policy
- Apprenticeship Draft

EDUCATION SUMMIT



Horse Discovery Center Network

- 42 Horse Discovery Centers (HDCs) are part of a volunteer, certified program of stables licensed by the MHIB
- HDCs are located in 18 counties and in all regions of the state.
- Offer a safe, professional and educational experience every time.
- Horses give people a reason to learn and live a healthy more active lifestyle.
- Horse Discovery Center Events held and/or attended over 500 events and introduced over 200,000 adults and children to horses in 2023.
- Horses For Courses the 16-lesson program

Anne Litz, Maryland Horse Industry Board

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Anne Litz, Maryland Horse Industry Board

Partnership

Kindness

Athleticism

Science

Ethics

Math

Empowerment

Nutrition

Health

Nature

Maryland Horse Industry Board
www.mda.maryland.gov/horseboard



Family Farm - 4-H & FFA - Agsploration - MD Dairy Princess Program - University of Florida - Farm Bureau

Renée Wilson

THE
FARMYARD
PARKTON, MD

"Providing authentic agricultural experiences and positive relationships between consumers and farmers."

Ag Education on Farms

- Safety & liability
- Public perception of agriculture
- Authentic source
- Personal & career growth for guests

Business Components

- Chore Chart
- Classes & Tours
- Crops
- Equine
- Events
- Freeze & Retail
- Livestock
- Rare Breeds

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