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Vocational Education *and* Training (VET)

Ecosystems in Agribusiness Report



This report provides a desk-based analysis of the Vocational Education and Training (VET) markets and ecosystems relevant to agribusiness across six partner countries: Poland, Nigeria, Ghana, Uganda, Italy, and Portugal in the AgriVET Sub-Sahara Africa Project.

Developed by:

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Executive Summary

1. Introduction

This report provides a desk-based analysis of the Vocational Education and Training (VET) markets and ecosystems relevant to agribusiness across six partner countries: **Poland, Nigeria, Ghana, Uganda, Italy, and Portugal**.

As a central pathway into the labour market, VET systems are increasingly tasked with addressing the needs of modern agriculture, rural development, and the global food economy. This analysis identifies institutional players, delivery models, and the alignment between training systems and sector-specific labor market needs.

1.2 Objectives

- **Needs Assessment:** Conduct an in-depth evaluation of agri-food value chains to identify skill gaps and training challenges.
- **Stakeholder Engagement:** Involve VET providers, agri-food companies, and policymakers to align curricula with industry requirements.
- **Strategic Foundation:** Establish a roadmap for curriculum development and market mapping, particularly within the Sub-Saharan African context.

2. National VET Landscapes in Agribusiness

The following sections detail the current state of agribusiness training and participation trends in each partner country.

2.1 Europe: Poland, Italy, and Portugal

- **Poland:** Agribusiness training is characterized by a strong public pillar. The Ministry of Agriculture supervises a nationwide network of **66 agricultural school complexes**. These schools offer specialized tracks in veterinary technology, mechanization, and agrotronics.
- **Italy:** Hosts one of Europe's largest agri-food systems. Training is shifting to address climate change and digital tools. A unique feature is the **ITS Academy**, which offers higher technical training specifically for the agri-food sector.
- **Portugal:** Integrated under the **National Qualifications System (SNQ)**, VET accounts for approximately 40% of upper secondary enrolment. A specialized network of agricultural professional schools, coordinated by **APEPA**, drives sector-specific training.

2.2 Sub-Saharan Africa: Nigeria, Ghana, and Uganda

- **Nigeria:** Focuses on equipping a massive youth population with practical skills for self-reliance. For this study, the focus is localized to the **South-South Region (Delta**



and Rivers States). Training is split between Technical Colleges (theory-based) and Vocational Centers (hands-on).

- **Ghana:** Guided by the *Feed Ghana Programme (2025–2028)*, the system is moving from general policy to a "deep-dive" value chain approach. While production training is strong, gaps remain in input supply and modern processing techniques.
- **Uganda:** Agriculture contributes 24% to the GDP. The system prioritizes transforming raw produce into value-added market products. However, a significant rural-urban divide persists, with rural communities facing constrained access to modern technology.

3. Institutional and Governance Frameworks

Governance models vary from highly centralized systems to decentralized regional approaches.

3.1 Comparative Governance Models

Country	Primary Regulatory Body	Governance Style
Poland	Ministry of National Education / Ministry of Agriculture	Multi-level (National/County)
Nigeria	National Board for Technical Education (NBTE)	Federal/Tertiary oversight
Ghana	Commission for TVET (CTVET)	Centralized Regulatory
Uganda	Ministry of Education and Sports (DIT & UBTEB)	Competency-based oversight
Italy	Ministry of Education and Merit / Regional Govts.	Shared National-Regional
Portugal	National Agency for Qualification (ANQEP)	Integrated National System

3.2 Country-Specific Institutional Highlights

Nigeria: Training Provider Distribution

Technical and vocational training in Nigeria is delivered through a diverse range of institutions, with a significant emphasis on Innovation Enterprise Institutions (IEIs).

Table 1: Distribution of TVET Institutions in Nigeria

Types of Institutions	Education Level	Ministry Responsible	Number of Institutions	Proportion
Technical Colleges	Lower/ Upper secondary	NBTE / Ministry of Education	171	27.23
Monotechnic	Tertiary	NBTE / Ministry of Education	99	15.76
Polytechnics	Tertiary	NBTE / Ministry of Education	123	19.59
IEIs/VEIs	Tertiary	NBTE / Ministry of Education	235	37.42
Total			628	100

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Italy: The Shared Governance Model

Italy utilizes a "Shared National-Regional" model where the state sets the framework and regions handle the funding and accreditation.

Table 2: Key Stakeholders in the Italian Agribusiness VET System

- **MASAF:** Sets strategic priorities for agricultural modernization.
- **ISMEA:** Provides market intelligence and financial instruments for youth in agriculture.
- **CREA:** Links agricultural research with enterprise innovation.
- **Re.N.Is.A.:** The national network coordinating agricultural secondary institutes.

4. Value Chain Analysis and Skill Gaps

In the partner countries (particularly Ghana and Uganda), training is traditionally concentrated in the "Production" node, leaving significant gaps in other areas:

1. **Input Supply:** Often neglected in formal curricula; largely handled by private vendors.
2. **Post-Harvest Handling:** Critical need for training in pest management and grading to reduce loss.
3. **Processing & Value Addition:** Currently too theoretical; requires investment in modern machinery for hands-on learning.
4. **Logistics & Marketing:** Growing demand for digital supply chain management and agri-entrepreneurship.

5. Conclusion

While the VET frameworks in Poland, Italy, and Portugal are well-integrated into national qualification systems, the Sub-Saharan partners (Nigeria, Ghana, Uganda) are currently undergoing reforms to bridge the gap between academic theory and industry reality. Success across all regions depend on strengthening the "vertical pathway"—ensuring students can progress from basic vocational skills to higher technical and management roles within the agribusiness sector.



Introduction

This report presents a comprehensive desk-based analysis of the Vocational Education and Training (VET) market and training ecosystems within the agribusiness sectors of six partner countries: **Poland, Nigeria, Ghana, Uganda, Italy, and Portugal**. The primary objective is to conduct an in-depth needs assessment of agri-food value chains to identify critical skill gaps and training requirements. By engaging key stakeholders—including VET providers, agri-food enterprises, and policymakers—this study aims to align educational programming with industry demands. Ultimately, this analysis establishes a foundation for curriculum development and market mapping, specifically focusing on labour requirements in Sub-Saharan Africa and Europe.

VET serves as a primary gateway to the **Polish** labour market. In 2024, Cedefop reported that **53.45%** of all upper secondary students were enrolled in VET, exceeding the EU-27 average. The Ministry of Agriculture reinforces this relevance through a dedicated national network of agricultural schools designed to meet the evolving needs of "modern agriculture, rural areas, and the food economy."

In the **Nigerian** context, Technical and Vocational Education and Training (TVET) aims at fostering self-reliance and food security through practical trainings in crop production, livestock management, and agro-entrepreneurship.

- **Demographic Context:** With a population of approximately 201 million (the largest in Africa) and 40% of citizens under age 15, the need for youth employment is urgent.
- **Regional Focus:** This project focuses specifically on the **South-South Region**, with **Delta State** and **Rivers State** serving as the primary study areas.

The agri-food sector is the backbone of **Ghana's** economy, employing nearly half the workforce. Under the Feed Ghana Programme (2025–2028) and FASDEP II, the government has positioned TVET as a central pillar for industrialization. This analysis moves beyond policy overviews to map specific institutional players and granular skill gaps. This work supports Work Package 2 (Task 2.1) of the AgriVET project, providing a roadmap for targeted interventions in curriculum development and resource allocation.

Agriculture contributes approximately 24% of **Uganda's** GDP and employs 60–70% of the population, with a high concentration of women and youth. As the economy transitions toward industrialization, there is a rising demand for a workforce skilled in value addition and regional competitiveness. VET is critical here for equipping the majority workforce—youth and women—with the entrepreneurial skills necessary for high-productivity agri-food value chains.

Italy maintains one of Europe's most integrated agri-food systems. However, the sector is facing rapid transformation driven by climate change and digital innovation. Industry requirements are shifting toward a hybrid of technical agricultural knowledge and competencies in food safety, sustainability, and digital supply chain management. While

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Italy's network of professional institutes and specialized schools is robust, the alignment between training and market demand varies significantly across regions.

Portugal's VET system is structured under the **National Qualifications System (SNQ)**, emphasizing lifelong learning. Approximately 40% of upper secondary students are enrolled in vocational pathways. Given the importance of rural employment, the country utilizes a specialized network of vocational schools and higher education institutions to deliver training focused on rural development and food production.

Agriculture and the agri-food sector remain relevant components of the Portuguese economy and rural employment. As a result, vocational training programmes related to agriculture, rural development and food production are delivered through a network of vocational schools, training centres and higher education institutions.

Scope and Objectives

The overarching goal of this analysis is to evaluate the needs of agribusiness value chains to ensure long-term sector growth. The specific objectives include:

- **Gap Analysis:** Identifying specific technical and soft skill deficiencies within the current workforce.
- **Stakeholder Integration:** Aligning VET provider outputs with the real-world requirements of agri-food companies.
- **Curriculum Foundations:** Providing the data necessary to map labour market needs and design responsive training modules.

National VET Landscapes in Agribusiness: Partner Country Profiles

Poland

Poland's agribusiness VET system is primarily school-based, combining general education with vocational qualifications through three core routes: 5-year technical secondary schools (*technikum*), and two stages of sectoral vocational schools (*branżowa szkoła*). The introduction of "Stage II" in 2020/21 improved vertical mobility, allowing students to bridge vocational training with the *matura* (national baccalaureate).

- **Market Composition:** The sector is 87% publicly funded. As of the 2024/25 academic year, approximately 900,000 pupils are enrolled across 3,500 vocational and technical schools.
- **Demographics:** Participation is male-dominated (approx. 62–66%).
- **Specialized Infrastructure:** The Ministry of Agriculture and Rural Development directly supervises a unique network of 66 agricultural school complexes (*Zespoły Szkół Centrum Kształcenia Rolniczego*). These centers provide specialized training in veterinary technology, agrotronics, landscape architecture, and food services.

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Nigeria

TVET in the Nigerian agricultural sector is decentralized, delivered by a mix of public colleges, research institutes, and private actors.

- **Providers:** A broad ecosystem including agricultural colleges, extension departments, farmer training centers, and NGOs.
- **Target Groups:** Programs cater to school-leavers, active smallholders, and commercial value-chain actors (processors and traders).
- **Focus:** Training emphasizes practical employment skills and entrepreneurship within agricultural value chains.

Ghana

Ghana's Technical and Vocational Education and Training (TVET) system, led by the Ministry of Education (MoE) and regulated by Commission for Technical and Vocational Education and Training (CTVET), has undergone significant reform to address historical fragmentation and weak industry linkages. While the policy framework is increasingly coherent, the on-the-ground reality for agribusiness training remains complex and uneven.

When viewed through an agri-food value chain lens, the strengths and weaknesses of current training provision become clearer:

- **Input Supply (Seeds, Fertilizers, Equipment):** Training is limited, often delivered ad-hoc by input suppliers.
- **Production (Crop & Livestock Farming):** This is the best-served node, with agricultural colleges and MoFA extension services providing foundational knowledge.
- **Post-Harvest Handling & Storage:** Training on proper harvesting techniques, grading, storage pest management.
- **Processing & Value Addition:** Food technology programmes exist but are often theoretical and lack equipment for hands-on training in modern processing techniques.
- **Marketing, Logistics & Business Management:** Training is growing but often too generic.

Access to training across these nodes is skewed. Public programmes, like the Ghana TVET Voucher Project, are improving access in regions like Volta and Northern Ghana, but rural populations, women, and youth in the informal economy still face the highest barriers, often relying on informal apprenticeships that may not teach modern, safe, or sustainable practices.

Uganda

Uganda utilizes a centrally coordinated model led by the Ministry of Education and Sports, supported by the **Directorate of Industrial Training (DIT)** for competency-based certification and **UBTEB** for formal examinations.

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- **Structure:** Agribusiness training covers the full cycle: production, agro-processing (flours, oils), and post-harvest management.
- **Demographics:** Despite a youth population of over 70%, participation is often driven by economic necessity rather than structured career pathways.
- **Challenges:** There is a significant rural-urban divide in equipment quality. Women, though central to the agricultural workforce, remain underrepresented in formal VET leadership and certification.

Italy

Italy's vocational education and training system operates through a **multi-level governance structure** that involves national ministries, regional authorities, and a wide network of training institutions. The Ministry of Education and Merit (MIM) oversees upper secondary technical and professional education, including agricultural institutes. The Ministry of Labour and Social Policies contributes to policies related to vocational training and lifelong learning. Regional governments play a central role in managing and funding vocational training programs, particularly those linked to local labour market needs. This decentralised structure allows regions to adapt training offers to the characteristics of their agricultural and agri-food sectors. Several types of institutions provide training relevant to agribusiness. **Public providers** include agricultural technical institutes (Istituti Tecnici Agrari), professional institutes for agriculture and rural development, and public vocational training centres managed at regional level. **Private training organisations** and accredited training centres also offer professional courses in agriculture, food processing, and agri-food management. In addition, sectoral organisations such as agricultural associations, cooperatives, and chambers of commerce contribute to training initiatives, often in collaboration with regional authorities or EU-funded programs. Training pathways cover a wide range of qualifications. Students can enrol in agricultural education programs within the upper secondary school system, which combine theoretical knowledge with practical training. Regional vocational programs provide shorter and more specialised courses in areas such as crop production, livestock management, food processing, quality control, and agri-food entrepreneurship. Lifelong learning opportunities are also available for farmers and workers through professional development courses supported by national and European initiatives. Participation in agricultural training remains closely linked to **rural territories**, where agribusiness activities are concentrated. Youth participation in agricultural education has shown renewed interest in recent years, partly driven by opportunities related to sustainable agriculture and agri-food innovation. However, participation levels vary across regions, and gender representation remains uneven, with men still representing a larger share of students and workers in several agricultural professions.

Table 1 Key Institutions in the Italian VET System for Agribusiness

Institution	Role	Level
Ministry of Education and Merit (MIM)	Oversees technical and professional schools including agricultural institutes	National
Ministry of Labour and Social Policies	Coordinates vocational training and lifelong learning policies	National
Regional Governments	Manage and fund vocational training programs	Regional
Agricultural Technical Institutes	Provide secondary education in agriculture and agribusiness	Education system
Accredited Training Centres	Deliver specialised vocational courses	Regional/Private

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Portugal

The Portuguese VET system is integrated into the **National Qualifications System (SNQ)** and managed by **ANQEP**. It is characterized by "double certification," granting students both an academic diploma and a professional qualification.

- **Specialized Schools:** The *Associação Portuguesa de Escolas Profissionais Agrícolas* (APEPA) represents a dedicated network of agricultural vocational schools focusing on livestock, production, and rural development.
- **Standards:** All qualifications are mapped to the **National Qualifications Catalogue (CNQ)**, ensuring training meets specific competence units.
- **Pathways:** Approximately 40% of upper secondary students choose vocational routes. Portugal excels in "vertical mobility," with strong links between polytechnic agricultural schools and higher education (agronomy and food technology).

The Portuguese VET system is organised within the **Sistema Nacional de Qualificações (SNQ)**.

The SNQ is coordinated by the government members responsible for **education and vocational training**, with implementation involving several institutions including the **Agência Nacional para a Qualificação e o Ensino Profissional (ANQEP)**. The SNQ integrates several training modalities, including: *Cursos Profissionais* (Professional Courses); *Cursos de Aprendizagem* (Apprenticeship Courses); *Cursos de Educação e Formação* (CEF); *Cursos de Educação e Formação de Adultos* (EFA); *Cursos de Especialização Tecnológica* (CET); and *Formações Modulares Certificadas*. These training pathways lead to **double certification**, combining academic education and professional qualification.

Source: DGERT – Sistema Nacional de Qualificações.

- **Main VET providers active in agribusiness**

Vocational training related to agriculture and the agri-food sector is delivered by several types of institutions:

- Public secondary schools offering professional programmes
- Professional schools (Escolas Profissionais)
- IEFP vocational training centres
- DGERT-certified training organisations
- Agricultural vocational schools

Portugal also has a specialised network of agricultural vocational schools. Many are members of the **Associação Portuguesa de Escolas Profissionais Agrícolas (APEPA)**.

Examples include:

Escola Profissional Agrícola Quinta da Lageosa

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Escola Profissional Agrícola Eng. Silva Nunes

Escola Profissional de Agricultura e Desenvolvimento Rural de Marco de Canaveses

Escola Profissional de Desenvolvimento Rural de Abrantes

Escola Profissional de Agricultura e Desenvolvimento Rural de Cister

These institutions provide vocational training in agriculture, livestock production and rural development.

Source: APEPA – Associação Portuguesa de Escolas Profissionais Agrícolas.

- **VET programmes and qualifications in agribusiness**

Vocational qualifications in Portugal are organised through the ***Catálogo Nacional de Qualificações (CNQ)***.

The CNQ defines qualification profiles, training standards, competence units and certification requirements.

Training programmes linked to agriculture and agri-food value chains may include areas such as agricultural production, animal production, agri-environmental management, food production and processing and rural development.

The CNQ functions as the national reference for non-higher vocational qualifications.

Source: Government of Portugal – *Catálogo Nacional de Qualificações*.

- **Participation and coverage**

Portugal has a substantial VET learner base at upper secondary level.

Approximately **40% of upper secondary students participate in vocational programmes**, reflecting the expansion of vocational pathways since the mid-2000s (Source: *Fundação Francisco Manuel dos Santos* policy research on vocational education expansion).

However, **national statistics generally do not disaggregate VET participation by sector**, which means specific participation figures for agriculture or agri-food VET programmes are limited.

Gender patterns are also visible within the VET system. Data compiled by Cedefop indicates that **male learners are more represented in youth vocational programmes**, while adult education pathways show more balanced participation.

Source: Cedefop – VET in Europe: Portugal.

Agricultural training pathways are supported by both vocational education and higher education institutions. Most Portuguese **polytechnic institutes include schools of agriculture**, which provide further education opportunities in agronomy, agricultural engineering, food technology and environmental management. This structure enables a **vertical pathway from vocational education to higher education in agriculture and food systems**.

Source: national higher education institutional structures.

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Institutional and Organizational Structure of TVET

Poland: A Multi-Level Governance Model

Poland's Vocational Education and Training (VET) system is anchored in the **2016 Law on School Education**. Governance is characterized by a multi-level structure:

- **National Level:** The Ministry of National Education defines systemic rules and curricula.
- **Regional Level:** Pedagogical supervision and quality oversight.
- **Local Level:** County governments (*powiats*) manage school provision, while sectoral ministries oversee specialized networks, such as agricultural schools.

Quality Assurance: Certification is managed by the **Central Examination Board**, with practical and written exams administered by Regional Boards. Successful candidates receive vocational qualification certificates or diplomas.

Nigeria: Dual-Sector Framework

Nigeria distinguishes between **Technical Education** (tertiary, non-university level) and **Vocational Education** (skills-based training for artisans and craftsmen).

- **Governance:** The **National Board for Technical Education (NBTE)** is the primary regulatory body.
- **Sectoral Focus:** Technical colleges focus on the science behind occupations, while Vocational Enterprise Institutions (VEIs) emphasize hands-on, immediate employment skills.

Institution Type	Level	Primary Regulator
Technical Colleges	Secondary	NBTE / Ministry of Education
Polytechnics / Monotechnics	Tertiary	NBTE / Ministry of Education
IEIs / VEIs	Tertiary	NBTE / Ministry of Education

The Nigerian education system distinguishes technical education and vocational education as two different sub-sectors. In general, institutions in the technical education sub-sector are of tertiary but non-university level and have the role of educating middle-and technical-level manpower for commerce, industry, agriculture, health care and teaching.

The main role of vocational education in Nigeria is to train low-level workforce, such as operatives, artisans, craftsmen and master craftsmen for commerce, industry, agriculture and ancillary services. Vocational courses and programs are shorter, more focused and prepare trainees for immediate employment. They often result in a certificate of completion. This type of program focuses on a hands-on approach as well as teaching the learners general employment skills. The duration of the programs offered by vocational training centres is between 1 and 3 years, depending on the vocation.



Although the Nigerian educational sector is witnessing a proliferation of institutions at the primary, secondary and tertiary levels, not enough attention is paid to Technical and Vocational Education and Training (TVET), in spite of the existence of the National Board for Technical Education (NBTE) created in January 1977.

Table 2. Types and numbers of institutions delivering technical and vocational training in Nigeria

Types of Institutions	Education Level	Ministry Responsible	Number of Institutions	Proportion
Technical Colleges	Lower/ Upper secondary	NBTE / Ministry of Education	171	27.23
Monotechnic	Tertiary	NBTE / Ministry of Education	99	15.76
Polytechnics	Tertiary	NBTE / Ministry of Education	123	19.59
IEIs/VEIs	Tertiary	NBTE / Ministry of Education	235	37.42
Total			628	100

Source: FAR 2020

Ghana: Centralized Regulation

The **Ministry of Education (MoE)** oversees the national TVET policy, while the **Commission for Technical and Vocational Education and Training (CTVET)** serves as the central regulator. In the agribusiness sector, the **Ministry of Food and Agriculture (MoFA)** collaborates with training providers to enhance technical extension services and value-chain capacity. CTVET also manages skills development initiatives, occupational standards, and national certification systems aimed at strengthening workforce readiness.

The **Ministry of Food and Agriculture (MoFA)** ensures workforce development through agricultural training programmes, extension services, and sector-level development initiatives. MoFA, collaborates with training institutions and development partners to improve farmers' technical skills, promote the adoption of modern agricultural practices, and strengthen agribusiness capacity along the value chain.

Training delivery is supported by technical universities, technical institutes, agricultural colleges, private training centres, and NGOs engaged in skills development, as well as international development partners in agribusiness training through capacity-building programmes, youth employment projects, and entrepreneurship development.

Uganda's Framework

Table 3. TVET in Uganda

Actor Type	Key Roles
Government Ministries	Policy formulation, regulation and funding
DIT & UBTEB	Certification, assessment, quality assurance
TVET Institutions	Skills training and curriculum delivery

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Private Sector	Industry exposure, employment, apprenticeships
NGOs/CSOs	Capacity building, inclusion, market linkages
Development Partners	Funding, technical support

Italy: Shared National-Regional Governance Model

Italy employs a coordinated model where responsibilities are split between the state and regional authorities:

- **Ministry of Education and Merit (MIM):** Regulates secondary technical education, including agricultural institutes and the related study pathways.
- **Regions:** Plan, finance, and monitor the **leFP** (vocational education) system.
- **Specialized Bodies:** **ISMEA** provides market intelligence and youth orientation, while **CREA** handles agricultural research and innovation transfer.
- **Ministry of Labour and Social Policies (MLPS)** co-defines vocational training and lifelong learning policies linked to labour market access, apprenticeships, and adult skills development.
- The **Regions and Autonomous Provinces** hold a central operational role planning, accredit, finance, and monitor a large share of vocational education and training provision, within the regional **leFP** system and continuing vocational training.

Cedefop and INAPP both describe Italy's VET governance as a coordinated system in which ministries and regions share responsibilities through formal agreements and multi-level arrangements. Several sector-specific bodies shape the agribusiness training environment. The **Ministry of Agriculture, Food Sovereignty and Forests (MASAF)** influences strategic priorities connected to agricultural modernisation, innovation, and generational renewal in the sector. **ISMEA**, a public body supervised by MASAF, supports the agricultural and agri-food system through services, market intelligence, financial instruments, and youth-oriented initiatives; it also contributes to training and orientation activities relevant to agribusiness skills development. **CREA**, Italy's main public agricultural research organisation, supports innovation, experimentation, and knowledge transfer, with increasing links between research, enterprise, and training. The main training providers include **technical institutes with an agricultural specialisation, professional institutes for agriculture and rural development, regional vocational training centres**, and **ITS Academy** providers active in the agri-food technological area. At tertiary vocational level, INDIRE identifies **24 ITS Academy pathways in the agri-food system** across multiple regions, confirming the growing relevance of higher technical training for the sector. Alongside public providers, accredited private centres, professional associations, cooperatives, and chambers of commerce also deliver short courses, upskilling activities, and local training initiatives. A relevant feature of the Italian system is the presence of **networks and partnerships** that connect schools, institutions, and sector bodies. The **Re.N.Is.A. – National Network of Agricultural Institutes** plays an important coordination role among agricultural schools. Its protocol with **ISMEA**, signed at MASAF, aims to strengthen student orientation, improve knowledge of the agri-food sector, and connect education more closely with sector services and opportunities. Labour

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market intelligence also feeds this ecosystem through the **Excelsior Information System** managed by Unioncamere with the Ministry of Labour and the EU, which provides evidence on occupational demand and skills needs that can support curriculum adaptation and planning.

Table 4. Main organizations involved in VET for agribusiness in Italy

Organization	Type	Main role in the VET/agri-food ecosystem
Ministry of Education and Merit (MIM)	Government ministry	Regulates upper secondary technical and professional education, including agricultural institutes
Ministry of Labour and Social Policies (MLPS)	Government ministry	Co-defines VET, lifelong learning, and apprenticeship policies
Regions and Autonomous Provinces	Public authorities	Plan, fund, accredit, and manage regional VET provision, including leFP
MASAF	Government ministry	Sets strategic priorities for agriculture, innovation, and sector development
ISMEA	Public body under MASAF supervision	Supports the agri-food sector through services, finance, data, orientation, and youth-focused initiatives
CREA	Public research body	Links research, innovation, experimentation, and knowledge transfer in agriculture
Agricultural technical and professional institutes	Public education providers	Deliver school-based agricultural education and practical training
ITS Academy (Agri-food area)	Tertiary VET providers	Offer higher technical pathways linked to innovation and labour market demand
Re.N.Is.A.	School network	Connects agricultural institutes and promotes collaboration with sector institutions
Unioncamere / Excelsior	Business support and labour market intelligence system	Provides data on skills demand and occupational needs

Portugal: The National Qualifications System (SNQ)

Portugal's VET is integrated through the **ANQEP** (National Agency for Qualification and Vocational Education), which coordinates the National Qualifications System. The **IEFP** (Institute for Employment and Vocational Training) manages labour market integration, while the **DGADR** focuses specifically on rural development and agricultural qualifications. The Portuguese VET system involves several key institutions:

- **ANQEP – Agência Nacional para a Qualificação e o Ensino Profissional**
Responsible for implementing and coordinating the National Qualifications System.
- **DGERT – Direção-Geral do Emprego e das Relações de Trabalho**
Responsible for policies related to vocational training and certification of training providers.
- **Ministry of Education**
Responsible for vocational programmes within the secondary education system.
- **Ministry of Labour, Solidarity and Social Security**
Responsible for employment policies and training programmes implemented through IEFP.
- **IEFP – Instituto do Emprego e Formação Profissional**

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Public body responsible for vocational training programmes aimed at labour market integration.

- **DGADR – Direção-Geral da Agricultura e Desenvolvimento Rural**

The public authority whose mission includes promoting rural development and supporting the qualification of rural stakeholders. These institutions interact within the SNQ framework and contribute to the development, certification and implementation of vocational training programmes.

Sources: DGERT, ANQEP, Government of Portugal institutional descriptions.

Policy and Regulatory Frameworks for VET in Partner Countries

Key Legislative Drivers

- **Poland:** Utilizes an **Integrated Qualifications System** linked to the European Qualifications Framework (EQF). Recent reforms include the 2023 establishment of **Sectoral Skills Centres (BCU)** to drive industry-specific upskilling.
- **Nigeria:** Guided by the **National Policy on Education (2013)** and the **National Skills Qualification Framework (NSQF)**. A significant 2025 reform initiative aims to restructure federal technical colleges to provide free tuition and stipends (₦45,000/month) to boost enrolment in critical sectors.
- **Uganda:** Driven by the **"Skilling Uganda" Strategy** and the **BTNET Act (2008)**. The focus has shifted toward **Competency-Based Education and Training (CBET)** to align graduate skills with industry demand.
- **Italy:** Recent governance is shaped by the **National Recovery and Resilience Plan (PNRR)** and the **CAP Strategic Plan 2023–2027**, which prioritize digital skills and sustainable agricultural modernization.

Recent Reforms/Policy Changes

Poland

Poland's qualification architecture is aligned with learning-outcomes approaches through an Integrated Qualifications System by the Act of 22 December 2015, linked to the Polish Qualifications Framework. VET is delivered by a national classification of occupations and a national core curriculum. The Ministry of National Education notes that training is in 238 occupations under the 2019 VET occupation classification regulation, the 2019 core curriculum regulation specifies requirements for vocational training.

Recent agribusiness reforms are the creation of sectoral or industry skills centres (BCU) as new institutions, in 2023 legal changes. Cedefop reports a plan to establish 120 such centres supporting targeted upskilling and reskilling across sectors.

The training-market environment for adult and jobseeker has shifted. Official guidance states the Register of Training Institutions (RIS) until the end of 2025, and from 1 January 2026 Labour Fund-financed trainings are delivered by providers listed in the Development Services Database (BUR).

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Nigeria

Nigeria's Vocational education policies are primarily driven by the National Policy on Education (NPE, 2013), focusing on Technical and Vocational Education and Training (TVET) to reduce unemployment and enhance industrialization. Key legislation includes the NBTE Act of 1977 for regulating National Skills Qualification Framework (NSQF, 2012) for certification.

Accreditation and qualification for Technical and Vocational Education and Training (TVET) in Nigeria are primarily regulated by the National Board for Technical Education (NBTE), focusing on curriculum standardization, practical skill acquisition, and facility inspection. Institutions must adopt NSQ-based curricula, maintain qualified instructors (min. NSQ Level 3), and provide adequate workshops. Key qualifications include National Skills Qualifications (NSQs) levels 1–3, Technical/Business Certificates, and National/Higher National Diplomas.

Accreditation Criteria for TVET Centers

Requirement for Registration & Accreditation as A Vocational Enterprise Institution (VEI) With the National Board for Technical Education (NBTE)

- Proof of registration with the Corporate Affairs Commission (CAC)
- Adoption of NSQ-Based Curricula
- A minimum of one Qualified Instructor per trade, maintaining a ratio of 1 instructor to 40 students
- At least one Quality Assurance Assessor (QAA) per trade and one certified Internal Quality Assurance Manager (IQAM) assigned to the training center (If unavailable, centres are to engage part-time QAA & IQAM).
- Availability of essential physical infrastructure, including workshops/studios/field facilities, offices, classrooms, and restrooms
- Documented training experience, including past training programs, levels of training offered, and certifications awarded.

The link for application for approval of new TVET's is

<http://www.digitalnbte.nbte.gov.ng/TVET/TVETApplication2>

Ghana

Ghana's vocational education and training system has several national policies and regulatory instruments to strengthen skills development and workforce competitiveness. The Technical and Vocational Education and Training Act, 2020 (Act 1023) is the primary legal framework for regulating and coordinating TVET institutions and programmes. The CTVET Act is the central authority responsible for standardisation, accreditation, and quality assurance on TVET.

The agricultural sector, workforce development is guided by national strategies coordinated through MoFA, including FASDEP II and related agricultural modernisation initiatives. These

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policies improve productivity, promote agribusiness development, and enhance value chain competitiveness through improved technical knowledge and skills acquisition.

Ghana also operates a National Technical and Vocational Education and Training Qualifications Framework (NTVETQF), to standardise training levels and certification pathways in technical institutions, to improve the portability of vocational qualifications and strengthen the connection between training outcomes and labour market requirements.

Recent TVET reforms are on improving institutional coordination, expanding access to vocational training, and upgrading training infrastructure. But persistent challenges on aligning training curricula with industry requirements and in securing adequate resources for practical skills training in agribusiness still exist.

Uganda

Uganda's Technical and Vocational Education and Training (VET) system is guided by a comprehensive policy and regulatory framework to strengthen skills development and align training with national development priorities. Central to it is the Skilling Uganda Strategy (2012–2022, with ongoing reforms), to promote demand-driven, competence-based training. Reinforced by the BTNET Act (2008), providing the legal foundation for the governance, coordination, and regulation of vocational education and training. The Education and Sports Sector Strategic Plan outline the government's commitment to expanding access, improving quality, and ensuring equity in education and training systems. The Uganda National Qualifications Framework (UNQF) complements these, standardizing qualifications, ensuring consistency in skills recognition, and facilitating progression across the levels of education and training.

These frameworks emphasize policy priorities critical to strengthening the VET ecosystem. Focusing on Competency-Based Education and Training (CBET), shifting learning from theoretical instructions to practical, skills and industry need based training. Enhancing industry relevance and employability, ensuring that graduates possess the technical and soft skills required by the labour market. Quality assurance and certification systems are being strengthened to improve the credibility and recognition of vocational qualifications, both nationally and regionally. Also, increased private sector participation, particularly in curriculum design, training delivery, and work-based learning opportunities, to bridge the gap between education and employment, while fostering responsive and dynamic skills development is needed.

Italy

Italy's vocational education and training (VET) system operates a structured legal and policy framework that combines national legislation, regional implementation mechanisms, and European policy alignment. Several laws and strategies regulate education, professional training, and skills development in agribusiness. These policies define qualification pathways, accreditation procedures for training providers, and standards for the recognition of



professional competencies. The governance model reflects the broader structure of the Italian VET system: national ministries establish the regulatory framework, while regions implement and manage vocational training programs based on local labour market needs. This structure allows trainings to adapt to the specific characteristics of regional agri-food economies, which vary considerably across the country.

Table 5. Key national policies shaping VET and agribusiness training in Italy

Policy / Legislation	Year	Main relevance for VET and agribusiness
Legislative Decree 226/2005	2005	Defines the national framework for vocational education and training pathways (leFP).
Law 107/2015 (“La Buona Scuola”)	2015	Strengthens work-based learning (alternanza scuola-lavoro) and collaboration between schools and enterprises.
Legislative Decree 61/2017	2017	Reform of vocational education institutions, including programs related to agriculture and rural development.
National Recovery and Resilience Plan (PNRR)	2021	Introduces investments in technical education, digital skills, and the strengthening of ITS Academy institutions.
CAP Strategic Plan for Italy 2023–2027	2023	Supports knowledge transfer, advisory services, and training for farmers and agri-food professionals.

The Italian system also relies on qualification and accreditation frameworks that ensure coherence between training programs and labour market needs. The National Qualifications Framework (QNQ) aligns Italian qualifications with the European Qualifications Framework (EQF), facilitating transparency and recognition of skills. Training providers must obtain accreditation from regional authorities in order to deliver publicly funded vocational programs.

Table 6. Qualification and accreditation frameworks

Framework / System	Function
National Qualifications Framework (QNQ)	Aligns Italian qualifications with the European Qualifications Framework (EQF).
Regional accreditation systems	Authorise training centres to deliver vocational education and publicly funded training programs.
National repertoire of qualifications	Defines professional profiles and competencies used across VET pathways.
ITS Academy system	Provides tertiary-level technical education strongly connected with industry needs.

Recent policy developments focus on **strengthening technical education and supporting innovation in strategic sectors**, including agriculture and agri-food production. The **PNRR** have expanded the ITS Academy network and encouraged stronger collaborations between training institutions and enterprises. In parallel, the implementation of the **CAP Strategic Plan 2023–2027** has reinforced knowledge transfer and professional training measures to improve the sustainability and competitiveness of the agricultural sector. These policies create the regulatory environment that shapes vocational training opportunities in agribusiness, with significant implementation responsibilities to regional authorities.

Portugal

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The Portuguese VET system is regulated through several key legislative and policy instruments.

National Qualifications System

Established through Decree-Law 396/2007 and updated by Decree-Law 14/2017. The system defines the structure of vocational education, qualification frameworks and training pathways.

National Qualifications Catalogue

Created under Portaria 781/2009, the CNQ defines qualification standards and professional competence frameworks.

Sectoral Qualification Councils

Consultative bodies responsible for identifying priority qualifications and supporting updates to the CNQ.

European alignment

The Portuguese VET system is aligned with European frameworks including:

European Qualifications Framework (EQF)

European Credit System for Vocational Education and Training (ECVET)

European Quality Assurance in VET (EQAVET)

Sources: DGERT, ANQEP, Government of Portugal services.

Training Programs and Agribusiness Offerings for Partner countries

Poland: Specialized Agriculture Pathways

Agribusiness trainings span VET in schools, continuing VET for adults, and sector-specific non-formal provisions. Key pathways are technical (5 years) and stage I/II sectoral schools (3+2 years), with qualifying vocational examinations.

Poland has mandatory work-based learning for VET programmes in school workshops, continuing education or vocational training centres, in sectoral skills or industry competence centres, or with employers, including apprenticeships.

Agribusiness school provision is concentrated in the agriculture ministry's agricultural school network. The ministry prepares learners for modern agribusiness roles such as veterinary technician, agricultural mechanisation and agrotechnics, landscape architecture, and food-related occupations. Other activities are placements in farms, sector enterprises, specialist courses, and participation in Industry Skills Centres.

For adult learners and in-service workers - vocational qualification courses and courses delivered by vocational and adult education centres and related institutions. Complementing formal schooling, the Agricultural Advisory Centre in Brwinów provides trainings and certification functions for advisers.

Most of the training marketing operates through platforms and registers. The Polish Agency for Enterprise Development describes the Development Services Database as a free, publicly accessible register of training and advisory services, including in-person, remote and blended formats.



Nigeria: Specialized Training Centres

The federal government renewed Technical and Vocational Education and Training (TVET) programme in 2025 is to promote skills that match labour market needs to reduce youth unemployment. It focuses on practical skills in construction, transportation, oil and gas, agriculture, and renewable energy. The reforms require the federal technical colleges restructuring to admit only vocational trades students, to increase technical colleges. The students receive free tuition, accommodation, feeding, and support for industrial training, with monthly ₦45,000 stipends to encourage enrolment. The government's plans to expand the technical colleges and introduce a national skills fund to sustain the programme and strengthen skills development nationwide (The Cable 2025).

The agricultural and vocational education training centres in Nigeria are:

Leventis Foundation Nigeria Agricultural Training Schools: Offers one-year training for youth/farmers in modern, sustainable agriculture (crop/livestock production, engineering) with centers in Kano (Panda), Kaduna (Dogon Dawa), Gombe (Tumu), and FCT (Yaba).

Institute of Agricultural Research and Training (IAR&T), Ibadan: Focuses on genetic improvement, processing, land/water technology, and livestock.

Federal College of Agricultural Produce Technology (FCAPT), Kano: Specializes in post-harvest handling, produce inspection, and agricultural extension.

Agricultural Training Centre (ATC), AFOS: Focuses on sustainable agribusiness, management, and best practices.

National Directorate of Employment (NDE): Provides various agricultural vocational skill acquisitions.

Ghana's Training Pathway

While Ghana offers diverse diplomas in agriculture, data indicates a disconnect between curricula and industry needs. Ghana offers a range of programmes through Technical Universities (e.g., Ho, Cape Coast), Agricultural Colleges (e.g., Kwadaso, Damongo), and private/Vocational Institutes.

Table 7

Value Chain Node	Typical Programmes/ Courses Offered	Observed Gaps in Training Delivery
Production	Diploma in General Agriculture, Crop/Livestock Husbandry	Outdated practices taught; limited exposure to climate-smart agriculture; weak integration of ICT for farm management
Post-Harvest	Post-Harvest Technology (often a module)	Severe lack of practical tools (moisture metres, hermetic storage solutions); training is often theoretical

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Processing	Food Processing Agro-Processing	Technology,	Curricula exist but equipment is obsolete or non-functional; limited hands-on experience; gaps in food safety & quality assurance training
Marketing/ Business	Agribusiness Entrepreneurship	Management,	Courses often too theoretical and not contextualised; limited training in digital literacy, financial management, or value chain finance

Key Data Point: A 2023 tracer study by a major Technical University found that less than 30% of its agribusiness graduates were employed in formal, full-time roles directly related to their field of study within two years, citing lack of practical, job-ready skills as a key barrier.

Uganda: Multi-Modal Delivery

Uganda utilizes a mix of formal accredited diplomas and informal NGO-led training. While training remains largely in-person, there is an emerging trend toward **mobile-based extension services** to provide real-time market and weather data to remote farmers.

Uganda's agribusiness VET system offers program types for different needs and entry points. Formal programs, such as certificates and diplomas in agriculture and agribusiness, through technical colleges and agricultural training institutes, providing structured and accredited pathways for learners seeking professional qualifications. These programs combine theoretical knowledge with practical training in crops and livestock production, agronomy, and agribusiness management. Also, short courses are offered by both public and non-state actors, focusing on specific skills as value addition, food safety, packaging, and entrepreneurship. These are flexible and tailored to the immediate needs of farmers and small enterprises. Informal training programs, delivered by NGOs and community-based organizations, reach underserved populations providing hands-on, context-specific capacity building and business support.

Agribusiness training in Uganda remains predominantly in-person, with emphasis on practical, field-based learning through demonstrations, workshops, and on-site training. The integration of digital and blended learning approaches is limited, due to infrastructural constraints, limited digital literacy, and access challenges, especially in rural areas. Despite this, there is a growing interest in leveraging technology to enhance learning. One emerging trend is the use of mobile-based extension services, which provide farmers and entrepreneurs with timely information on weather, market prices, and best practices. While still in early stages, these digital tools present an opportunity to expand the reach and effectiveness of training, particularly for remote communities. The primary target groups for agribusiness VET programs are youth, smallholder farmers, and women entrepreneurs, each with distinct needs and challenges.

Italy: Multi-pronged Technical Approach

Italy offers training opportunities in the agribusiness sector. Programs exist in levels of the education and training combining classroom learning with practical activities in farms,

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laboratories, and food processing facilities. Training pathways cover agricultural production, food technology, rural development, and agri-food management.

In upper secondary level, technical and professional institutes with agricultural specializations provide structured education programs that integrate theoretical knowledge with field-based trainings. These last for five years and leading to qualifications for graduates to continue into higher education or get into the labour market directly. Students develop competencies in crop production, livestock management, environmental sustainability, and agri-food supply chains. Regional vocational training centres offer shorter professional qualification programs for young people, job seekers, and workers aspiring to enrol or update their skills in the sector. These courses focus on practical competencies such as agricultural machinery operation, food processing techniques, quality control, and sustainable farming practices.

The tertiary vocational **ITS Academy programs in the agri-food system** provide specialized trainings in technological innovation and industry needs, lasting two years including internships or apprenticeships within companies.

Short courses and continuing professional development programs are organised by training centres through, agricultural associations, and sector organisations. These support farmers, entrepreneurs, and employees who need to update their competencies in digital agriculture, food safety, and environmental management.

Table 8. Examples of training programs in the Italian agribusiness sector

Training program		Level	Typical duration	Target groups	Delivery mode
Agricultural Institutes	Technical	Upper secondary education	5 years	Students aged 14–19	In-person with practical training
Professional Institutes for Agriculture		Upper secondary vocational education	5 years	Students seeking vocational pathways	In-person and laboratory-based
Regional Vocational Training Courses (IeFP)		Initial vocational training	3–4 years	Youth and early school leavers	Mainly in-person
ITS Academy – Agri-food system		Tertiary vocational education	2 years	Graduates and young professionals	Blended with strong company internships
Short professional courses (farm management, food safety, digital agriculture)		Continuing vocational training	Weeks to months	Farmers, workers, entrepreneurs	In-person or blended

The approaches are **practice-based**, reflecting the operational nature of agricultural activities. In recent years, digital learning components have expanded, particularly for theoretical modules and professional development courses. Blended learning formats are becoming popular, especially in innovative, sustainable, and precise agricultural trainings.

Portugal: Practice-based Formal and Non-formal Approach

Training programmes relevant to the agri-food sector are available through several SNQ modalities.

These include:

- Professional courses at secondary education level

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- Apprenticeship programmes
- Adult education and training programmes
- Technological specialization courses
- Modular certified training programmes

Examples of vocational qualifications related to agriculture and the agri-food value chain available through the **Catálogo Nacional de Qualificações** include:

- *Técnico de Produção Agropecuária*
- *Técnico de Agroecologia*
- *Técnico de Viticultura e Enologia*
- *Técnico de Gestão Equina*
- *Técnico de Produção Agrária*
- *Operador Agrícola*
- *Operador de Jardinagem e Espaços Verdes*

These programmes prepare learners for occupations related to:

- agricultural and livestock production
- crop management
- sustainable agriculture and agroecology
- wine production and viticulture
- rural and environmental management

Most of these qualifications correspond with **EQF level 4** often delivered through professional secondary education programmes or apprenticeship routes.

Training programmes generally combine classroom training, practical learning and work-based training or internships.

The duration of the programmes vary depending on the modality and qualification level. Training delivery is primarily in-person, although some institutions increasingly incorporate blended learning components.

Sources: *DGERT – Sistema Nacional de Qualificações, Catálogo Nacional de Qualificações (CNQ), ANQEP – Agência Nacional para a Qualificação e o Ensino Profissional*

Comparative Analysis of VET Gaps and Challenges in Partner Countries

Across the partner countries, the agribusiness VET sector faces a "triple mismatch" of infrastructure, curriculum relevance, and stakeholder coordination.

1.1 Infrastructure and Resource Constraints

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- **Poland:** Despite a mature system, gaps in laboratory and workshop equipment persist, particularly in older agricultural school complexes. Digital readiness remains uneven, a gap highlighted by the rapid transition to "Green" and "Smart" farming.
- **Nigeria:** Severe underfunding has led to a shortage of qualified instructors and functional workshops. In the Niger Delta specifically, there is a marked absence of physical TVET institutions dedicated to modern agribusiness.
- **Ghana:** A significant "theory-practice" chasm exists; students often graduate without ever operating the machinery (autoclaves, refractometers, sealers) they have studied in textbooks.

1.2 Curriculum Inertia and Skills Mismatch

- **Italy:** While technically advanced, curricula struggle to keep pace with "Industry 4.0" in agriculture—specifically precision farming, big data management, and climate-resilient production.
- **Uganda:** Curricula remain overly theoretical, failing to integrate critical modern pillars such as e-commerce, value-addition, and food safety certification.
- **Portugal:** There is a notable struggle to attract young talent due to the negative perception of agricultural labor, compounded by a lack of sector-specific data to track graduate outcomes.

1.3 Systemic and Governance Barriers

- **Multi-level Complexity:** In Poland and Italy, the layer of national and regional governance can lead to fragmented planning and slow responsiveness to local market shifts.
- **Demographic Disparities:** In Ghana and Uganda, training centers are concentrated in urban capitals, causing a "skills drain" from the rural communities that need modernization most. Women, who form the backbone of the workforce, face significant mobility and scheduling barriers.

Poland

Several challenges affect agribusiness-relevant VET delivery and outcomes in Poland.

Infrastructure and equipment constraints remain a challenge in agricultural training. Available evidence and stakeholder feedback suggest that some agricultural school complexes face gaps in laboratory and workshop equipment, which may hinder full curriculum delivery and affect the quality of practical training. In several cases, these limitations are partially mitigated through cooperation with sector enterprises and universities.

Skills demand is being reshaped rapidly by the green transition and by digitalisation, while training systems face uneven digital readiness. Cedefop highlights that Poland's labour market is among those most affected by labour shortages and that, in the context of the green transition, shortages in key sectors have increased in recent years and are linked to a lack of relevant skills. It also notes that the pandemic exposed gaps in digital literacy and shortages of ICT equipment and tools, as well as methodological and technological skills challenges.

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Governance complexity can slow responsiveness. Cedefop describes multi-level governance and ongoing measures to improve system responsiveness, including annual forecasting of demand for VET occupations and VET graduate tracking. However, publicly visible evidence remains stronger at aggregate level than at agribusiness-occupation level across all providers, constraining evidence-based planning.

Participation patterns also show persistent gender imbalance in key VET tracks, which has implications for inclusion and talent supply in agribusiness.

Nigeria

Technical and Vocational Education and Training (TVET) is a vital component of Nigeria's educational system, designed to equip students with practical skills for employability and economic growth. However, despite its significance, TVET in Nigerian schools faces numerous challenges that hinder its effectiveness. These challenges include inadequate infrastructure, a shortage of qualified instructors, outdated curricula, negative societal perceptions, weak industry collaboration, limited public-private partnership, a disconnect between the skills being taught and those required by emerging industries, and poor policy implementation (Usman, 2025). These barriers often result in low student motivation, poor academic performance, and limited employability, thereby undermining the overall goal of TVE to facilitate sustainable development and economic growth (Ogunbameru & Oladipo, 2020).

Ghana

The challenges are not merely institutional but systemic, affecting the entire training ecosystem.

1. *Curriculum Inertia vs. Market Dynamics*: While CTVET promotes occupational standards, the process of updating curricula is slow. Agribusiness is dynamic, with rapid changes in technology (e.g., drone use, digital finance) and market demands (e.g., international food safety standards). The current system struggles to keep pace, resulting in graduates with skills that are already outdated. Specific employer feedback from a recent Agribusiness Chamber survey indicates a shortage of graduates skilled in cold chain logistics management, quality assurance/control (QA/QC), and digital marketing.
2. *The "Theory-Practice" Chasm*: The most cited challenge is the lack of functional, modern equipment. For example, a college may teach food processing but lack a working sealer, autoclave, or even a simple refractometer. This means students graduate having seen a machine but never operated one, making them unprepared for even entry-level roles in an agro-processing factory.
3. *Geographic and Demographic Disparities*: The concentration of well-equipped training institutes in regional capitals creates a "skills drain" from rural areas. A young person in a rural district must migrate to access training and often does not return. This leaves farming communities without the very skills needed to modernize. Furthermore, training schedules and locations are rarely designed to accommodate the time and mobility constraints of women, who form the backbone of the agricultural workforce.

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4. *Fragmented Stakeholder Coordination:* Collaboration between industry and training providers is ad-hoc, often dependent on personal relationships rather than formal structures. This prevents the systematic flow of information about skills gaps and limits opportunities for quality industrial attachments, where students could gain the practical experience missing from their courses.

Uganda

Uganda's VET ecosystem in agribusiness faces several system-level challenges that limit its effectiveness and impact. One of the most significant issues is the weak alignment between training and labor market needs, where curricula and training outputs do not consistently reflect the evolving demands of the Agri-food sector. This results in graduates who may lack the practical and technical competencies required by employers or to run successful enterprises. Additionally, the system is characterized by fragmented coordination among stakeholders, including government institutions, training providers, private sector actors, and development partners. This fragmentation often leads to duplication of efforts, inefficiencies, and missed opportunities for synergy. Compounding these challenges is the issue of limited funding for TVET institutions, which affects their ability to invest in infrastructure, update training materials, and attract qualified trainers.

At the training level, several constraints affect the quality and relevance of learning. In some institutions, curricula remain outdated, with insufficient incorporation of emerging trends such as agribusiness commercialization and innovation. There is also a lack of practical exposure, with many training centers lacking modern equipment, laboratories, and demonstration facilities necessary for hands-on learning. Furthermore, critical areas such as digital agriculture, climate-smart practices, and value chain management are not yet fully integrated into training programs, despite their growing importance in modern agriculture. These gaps limit the ability of learners to adapt to changing market and environmental conditions.

Italy

Despite the presence of a structured vocational education and training system, several institutional and structural challenges continue to affect the development of skills in the Italian agribusiness sector. One of the most frequently identified issues concerns the **misalignment between training supply and the evolving needs of the sector**. Agricultural production and food processing are undergoing significant technological and environmental changes, yet training programs do not always integrate emerging competencies such as digital agriculture, precision farming, data-driven farm management, and climate-resilient production practices. Access to training also varies significantly across territories. Rural areas, where agribusiness activities are concentrated, often face **limited availability of specialised training opportunities**, particularly for advanced technical skills or innovation-oriented programs. Training centres may be located far from agricultural production zones, making participation more difficult for farmers and workers who already operate under demanding seasonal workloads. Governance and coordination represent another structural challenge. The Italian VET system involves multiple institutional actors—national ministries, regional



authorities, training centres, and sector organisations. While this multi-level structure allows flexibility and regional adaptation, it can also create **fragmentation in planning, funding, and program implementation**. Coordination between education providers and industry stakeholders remains uneven, which can slow the adaptation of curricula to labour market developments. Stakeholder consultations and labour market analyses also point to **persistent skills shortages in specific professional areas**. Companies report difficulties in recruiting technicians capable of combining agricultural expertise with competencies in digital technologies, sustainability management, and agri-food quality systems. Entrepreneurial and business management skills are also frequently identified as gaps, particularly among small and family-run agricultural enterprises.

These challenges highlight the need for stronger collaboration between training institutions, public authorities, and industry actors. More flexible training formats, closer links with enterprises, and greater integration of innovation-related competencies could significantly strengthen the responsiveness of the VET ecosystem supporting the agribusiness sector.

Portugal

Several challenges affect the development of vocational training in the agri-food sector.

Limited sector-specific data: National statistics rarely provide detailed data on participation in agricultural VET programmes.

Skills mismatch: Some studies indicate a mismatch between labour market needs and available technical skills in agriculture and rural sectors.

Attractiveness of agricultural professions: Agricultural careers often struggle to attract young learners, partly due to perceptions regarding working conditions and income levels.

Coordination challenges: The VET ecosystem involves multiple institutions and stakeholders, which can create coordination challenges.

Digital and sustainability skills: The agricultural sector is undergoing technological transformation, requiring new skills related to digital agriculture, environmental management and sustainable food systems.

Sources: Cedefop country reports and national policy discussions on skills development.

Strategic Recommendations for Reform

Curriculum Modernization & Modularization

- **Modular "Agri-Learning" Hubs:** Establish low-cost, community-based hubs in rural areas (Ghana/Nigeria) focused on practical tools like soil testing and solar drying.
- **Micro-credentials:** Implement short, stackable certifications for specialized skills such as "Solar-Powered Cold Storage Maintenance" or "Digital Marketing for Shea Processors."
- **Green & Digital Integration:** Prioritize the inclusion of "Agrotronics," precision agriculture, and circular economy principles across all European and African partners.

Strengthening Industry Linkages

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- **Work-Based Learning (WBL):** Formalize apprenticeship pilots with SMEs and large firms (e.g., Blue Skies in Ghana) to create a direct employment pipeline.
- **Sectoral Skills Platforms:** Establish regional agribusiness platforms (Italy/Poland) where employers have a formal role in validating competence profiles and curriculum design.

Capacity Building and Inclusion

- **Train-the-Trainer:** Provide VET instructors with hands-on exposure to modern technologies through partnerships with international universities of applied sciences.
- **Targeted Outreach:** Launch role-model schemes to improve gender balance in technical agricultural tracks and shift societal perceptions of TVET from a "second-tier" option to a high-value career path.

Country-Specific Conclusions

Country	Key Takeaway	Strategic Priority
Poland	Mature system with high mainstream participation.	Align curricula with the Green Transition; scale via Sectoral Skills Centres.
Nigeria	High potential but severely hampered by underfunding.	Bridge the Niger Delta infrastructure gap; modernize curricula for agro-logistics.
Ghana	Robust policy framework with weak implementation.	Close the "Theory-Practice" gap through rural Agri-Learning hubs and industry internships.
Uganda	Agriculture is the economic backbone; VET is the engine.	Focus on Competency-Based Training (CBET) and inclusion for youth and women.
Italy	Strong regional diversity and institutional base.	Reduce governance fragmentation; update curricula for digital/traceability systems.
Portugal	Established National Qualifications System.	Improve data collection; increase sector attractiveness for the younger generation.

Final Outlook

This analysis confirms that while each country operates at a different stage of institutional maturity, the path forward is shared: **VET must transition from a supply-driven educational model to a demand-driven industrial tool.** By focusing on practical skills, digital integration, and rural accessibility, these partner countries can transform their agri-food sectors into resilient, high-growth ecosystems.



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