The Secondary Vocational Agriculture Curriculum From 1890 to 1980

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In the novel Moon Valley, written by John F. Case in 1932, the trials and tribulations of a young college graduate named Tom Woodson returning to his home community to teach vocational agriculture are chronicled. One of the first tasks faced by young Woodson was to organize the curriculum. Case (p. 49) writes, "Contrary to the frequent practice of taking up animal husbandry work in the beginning of the vocational agriculture instruction, Tom Woodson had decided upon crop projects."

The decision to spend the first year on crop production was not received favorably. "'I won't study crops' announced James Newell flatly. . . . 'We are running beef cattle, and I want to study beef production . . . And Mr. Carter says for the [school] Board that I can choose any project I like'" (p. 50).

After a brief confrontation with the student, instructor Woodson concluded:

> Our project work this year will be crops. Next year you will study animal husbandry. So when you go home tonight, talk things over with your father and decide what crop project you desire to take as outlined by me today. That's all. You may sit down. (p. 52).

The problem faced by Woodson in organizing the curriculum was not unusual. Countless teachers since the inception of vocational agriculture have searched for the ideal curriculum in agriculture. Mays (1948, p. 125) writes, "It is clear that in the matter of curriculum making, agricultural education is still in the experimental stage, and although great progress has been made, much more study of this important aspect of the field remains to be done." Hamlin (1956, p. 41) concurs, "The struggle to decide what to teach boys enrolled in high school vocational agriculture has been going on ever since (1917). Many theories and practices have been tried."

In this article, the evolution of the curriculum in secondary agriculture is closely examined. Such a retrospection may provide the profession with insight into how the curriculum has evolved and may provide direction for the future development of the curriculum.

The First Curriculum

A basic secondary vocational agriculture curriculum was developed as far back as the 1890's, and parts of it are still used today. In the 1890's, remedial type agriculture courses were being taught in colleges to prepare students for college-level agriculture courses. This led to a need for an agricultural curriculum for high school students. There was a need to prepare students in high schools for college agriculture courses to relieve the colleges of this task (United States Department of Agriculture, 1902).

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The Committee on Methods of Teaching Agriculture of the United States Department of Agriculture Office of Experiment Stations met and set up a basic curriculum for the high school during the 1890's. The following topics were suggested for study in agriculture (United States Department of Agriculture, 1902, p. 5).

1.	Agronomy	climate, soils, fertilizers, botany, varieties, culture, harvesting, preservation, uses, and enemies of farm crops.
2.	Zootechny	theory and practice in animal production, breeding, feeding, hygiene and management of farm animals.
3.	Dairying	the principles and methods in the handling and sale of milk for consumption and in making of butter and cheese.
4.	Rural Engineering	practices and methods of laying out of farms and construction and use of farm buildings, systems for water supply, irrigation, drainage, sewage, roads and machinery.
5.	Rural Economy	history of agriculture, capital, labor systems, costs of production, marketing, records, accounts etc., as related to farm management.

This curriculum was to cover a span of four years. During the first three years, students were to spend five periods a week in the study of agriculture. In the senior year, the time was to be expanded to seven and a half periods per week.

The Committee on Methods of Teaching Agriculture also recommended that a third teacher be hired in two-teacher high schools and the subjects be divided by the three teachers as follows: one teacher would teach English, Latin and German; the second teacher would teach chemistry, botany, zoology, and agriculture; the third teacher would teach physics, mathematics, history and political economy (United States Department of Agriculture, 1902).

By the end of the 1890's, Indiana and Massachusetts allowed their high school students to choose the course of study they would follow for a four-year period. In Indiana, students could choose between a general course of study and an agricultural course of study. In Massachusetts, high school students could choose between a classical course of study, modern language course, manual training course, or an agricultural course of study (United States Department of Agriculture, 1902).

In Massachusetts, the first year of the agricultural curriculum included English, algebra, plants and their cultivation (i.e., botany--general and economic) and physics. The second year of the agricultural course included history and English, animals and their management (i.e., zoology--general and economic), chemistry, geometry, French or Latin. Students in the agricultural course would take history and English, agronomy and rural engineering, arithmetic, physiology, chemistry, French or German or Latin, astronomy and geology in the third year. The fourth year of the agricultural course of study included English, zootechny and dairying, history, rural economy and farm management, entomology, trigonometry and surveying.

Between 1900 and 1909, many state superintendents of public education prepared agriculture curricula for the public schools. In Louisiana, for example, the Superintendent of Public Education for the session 1908-1909 helped to prepare the agriculture curriculum for the public schools. The structure of the high school curriculum were presented as literary, commercial or agriculture (Mitchell, 1959).

The Louisiana Agriculture Curriculum for 1908-1909 allowed first-year students to take agricultural botany the first semester and agricultural zoology the second semester. The second year courses in agriculture were again divided into semesters and included agricultural zoology and breeds and breeding. During the third year of high school, students took only one agriculture course called agricultural physics. The fourth-year students took agricultural chemistry (Mitchell, 1959).

The Louisiana curriculum in agriculture in 1908-1909 was typical of that in other states. During the first two decades of the twentieth century, the typical structure of the agriculture curriculum was either semester-long or year-long courses on the same subject with the year-long course being more common. The term used to describe this approach to the curriculum was "the box system" (Floyd, 1934) or the "traditional" curriculum (Cook, 1947).

In some states, it was not uncommon to have agriculture offered only in the 9th and 10th grades since many students dropped out before the eleventh grade. In schools with only two years of agriculture, the emphasis was on livestock for one year and crops the second year.

The semester-long or year-long approach to organizing the curriculum was borrowed from the agriculture colleges (Hamlin, 1956). In the early part of the 1900's, secondary schools tried to pattern much of their curricula after that of the college. Little attention was paid to the needs of the community or the interests of the students. This is emphasized by Berry (1924, p. 114), who, after reviewing the recommended curriculum in agriculture for the state of Pennsylvania, wrote:

> Such an outline of the course of study has a tendency to limit the teacher in his study of community needs, and especially so when the time allotment is specified. It resembles the course of study pursued by the teacher at the agricultural college, and the usual procedure is to carry it out in a similar manner.

In the 1890's and early 1900's, secondary agriculture was taught primarily by science and chemistry teachers using the scientific and experimental methods of teaching. The first methods book in agricultural education, The Teaching of Agriculture in High School (Bricker, 1911), espoused the scientific approach to teaching. Bricker went into detail describing how to conduct agricultural experiments and demonstrations in the school.

The development of curricula in vocational agriculture in the 1890 to 1920 era is summed up by Mays (1948, p. 124):

> The traditional procedure is to decide arbitrarily the subjects with which a farmer ought to be familiar and to arrange such subjects in a supposedly pedagogical order or in a logical order of precedence. This method of curriculum making has only tradition to recommend it.

The 1920's--A Decade of Change

After the passage of the Smith-Hughes Act and the establishment of the Federal Board for Vocational Education, the leaders in agricultural education began to take a serious look at the curriculum. During the 1920 decade, two major changes occurred with the curriculum.

Occupational Analysis

Occupational analysis received attention during the 1920's as a technique for determining the content of the curriculum. Rufus W. Stimson, state supervisor of agriculture in Massachusetts, spoke to the National Society for Vocational Education in January of 1922 on the topic, "The Relationship of Occupational Analysis to the Project Method" (Stimson, 1922a). He advocated using occupational analysis to determine the content of the curriculum. Even though occupational analysis was first used by other vocational areas, Stimson was the first to use it in agricultural education, starting in 1911 (Heald, 1929; Stimson, 1922b). It wasn't until the 1920's that the profession showed much interest in and used occupational analysis. Lathrop (1922, p. 16) stated, "Heretofore, we have not based our courses in agriculture on occupational analysis." Lathrop then provided detailed guidelines on how to conduct an occupational analysis.

In 1923, W. W. Charters, a noted methods and curriculum expert, authored Curriculum Construction. In this book, he advocated using job analysis as the basis for the curriculum in agriculture. Chapters provided examples of task analysis using sheep husbandry and farm shop. Charters acknowledged that Stimson had been using occupational analysis in agriculture. (Charters was a frequent contributor to vocational journals and spoke at numerous vocational meetings. A chapter on how to teach agriculture was in his book, Teaching the Common Branches. See Stewart's article on Charters in the February 1933 issue of The Agricultural Education Magazine.)

Stimson's advocacy and Charter's book appear to have brought occupational analysis to the attention of the profession. Shortly thereafter, the bulletins published by the Federal Board for Vocational Education took a different approach to the subject matter. For example, a 1920 Federal Board for Vocational Education publication was titled A Unit Course in Poultry Husbandry (Federal Board for Vocational Education, 1920). A 1922 publication by the Board was titled Analyzing a Poultry Enterprise (Federal Board for Vocational Education, 1922). From 1922 on, the subject matter bulletins of the Federal Board took a task analysis approach to the content instead of the unit approach.

The Cross Section Approach to the Curriculum

In a presentation to the agricultural section of the National Society for Vocational Education in Buffalo, New York, in December of 1923, Dr. Theodore H. Eaton made several suggestions for the agricultural part of the high school curriculum. Due to the many requests from state supervisors and teacher educators for copies of the presentation, the Federal Board for Vocational Education published a revised edition of Eaton's manuscript as a federal bulletin, Principles in Making the Vocational Course of Study in Agriculture in the High School, (Federal Board for Vocational Education, 1925).

In Bulletin No. 98, Eaton offers a suggested ideal for the high school curriculum (p. 11).

> An ideal, perhaps, for the organization of a four-year course might be to run the enterprise units of study in parallel during the first three years so as to have a cross section (underline ours) of the farm vocation in terms of the major, contributory, and minor enterprises every year, and to cap off with coordinating studies in management and operative technique in the last year. For example, in a course designed for prospective dairy farmers the study of dairy cattle, herd management, care of milk, etc., would start in the first year and go on continuously to the end of the third, accompanied in each year by study of appropriate forage crop, cash crop or animal enterprises with accompanying construction and repair work in succession over the three years. In the last year engineering and management problems of the dairy farm as a whole would cap the course.

The cross section method gained support in the profession, but slowly. Berry's writing (1924, p. 116) reflects on the thinking of that era.

> From the standpoint of economy of study it would seem logical to include all work in plant husbandry in one year, since the factors of soil, moisture, fertilizer, cultivation, and the like are more or less similar for all crops . . . On the other hand, a certain amount of repetition from year to year may be advisable, provided each year's work becomes progressively more difficult.

Occupational analysis and the cross section approach to curriculum development were the major curriculum events of the 1920's. In reviewing the history of agricultural education, Hamlin (1956) recognized Eaton's work as being important in the development of the curriculum.

The 1930's - A Decade of Confusion

During the 1930's, the cross section approach to curriculum development and occupational analysis were gaining ground, yet there were many teachers and states who held to the more traditional approach to the curriculum. It appears the profession wasn't sure which way to go. This is illustrated by Cook in the Handbook on Teaching Vocational Agriculture which was first published in 1933. Cook (p. 69-71) writes:

> WHAT TO TEACH EACH YEAR - This is another state problem, and local schools should follow the state recommendations. Frequently Crops and Soils and Farm and Shop Work are recommended for the first year students, Animal Husbandry and Farm Shop for the second year . . . Some prefer not to designate Crops for one year, Animal Husbandry for another, etc., but rather to teach some jobs in various enterprises within each subject each year . . . Some states prefer to offer a rather general course designated as Agriculture I for the first year students. The second year students enrolled in Agriculture II to spend their time in studying the enterprises needed in the community.

In a short span of three pages, Cook described three different curriculum approaches which were being used during the 1930's.

Another factor which added to the confusion in organizing the curriculum was the attendance pattern of the students. Hamlin (1956, p. 41) writes:

> There was a heavy drop-out the first two years in high schools for the period. It seemed logical to provide courses in vocational agriculture the first two years, so as to reach as many farm boys as possible . . . Not until about 1930 were courses generally offered in the 11th and 12th grades.

During the 1930's, schools and states were wrestling with the two-year versus the four-year curriculum problem.

The cross-sectional approach to the curriculum was slowly and steadily embraced by agricultural educators during the 1930's but was still not accepted by everyone. Floyd (1934) advocated the cross section system over the box system. Lathrop, the research specialist in agricultural education for the U. S. Office of Education, in an attempt to clarify what was meant by the "cross section method" wrote (1935, p. 86):

> When I taught vocational agriculture back in the "dark ages," I taught crop enterprises in one year and animal enterprises in another year. If I were teaching now and wished to use the cross section principle, I would teach the dairy cattle enterprise in all four years of the vocational course. If I distributed the jobs in other major enterprises, each thru (sic) two or more years, I would have a cross section course.

Several teachers (Raine, 1939; Herbert, 1939; Baysinger, 1939) wrote articles in The Agricultural Education Magazine advocating the cross section approach to curriculum development. Deyoe's state of the art article (1939), "The Cross Sectional Course in Theory and Practice," appears to have been the final AMEN in establishing the cross section method as THE method for curriculum organization in vocational agriculture. In this article Deyoe mentions the cross section method had also been called the "horizontal," "unified," and "integrated" approach.

The 1940's - A Decade of Compromise

A marriage of the traditional and cross section approach to curriculum organization occurred in the 1940's. This combined approach to curriculum development was labeled the modified cross section. A Wisconsin vocational agriculture teacher (Chapman, 1945, p. 29) described the experiences he and his fellow teachers had with curriculum development:

> In developing the course of study, we found that there are two methods of approach. One method is to teach a little of each enterprise each year, going deeper into the subject each succeeding year. The other method is to select the major enterprise of each community and teach the core of it the first year, leaving more difficult parts of that enterprise for succeeding years. We have come to the conclusion that the second plan is simpler to organize and teach and provides a better opportunity to review important practices.

In the fifth edition (1947) of A Handbook on Teaching Vocational Agriculture, Cook identified three approaches to teaching agriculture: the traditional, the cross-sectional and the modified cross-sectional. The modified cross-sectional plan was described thus:

> A modified cross-sectional plan (is an approach) in which a phase of instruction such as livestock or field crops is used as a central emphasis along with selected units or jobs or

problems from other phases of instruction needed the current year. (p. 149)

Cook indicates the cross sectional and modified cross sectional plan were the major plans in use.

Most teachers abandoned the purely traditional approach to the curriculum by the late 1940's. Occupational analysis as an approach to identifying curriculum content was receiving little attention. Surveying the community to determine the type of agriculture in the community as a basis for determining course content was advocated by many agricultural educators (Cook, 1947).

The 1950's - A Decade of Calm

The 1950's were relatively uneventful for curriculum development in agriculture. Hamlin (1956) indicated the traditional approach to curriculum development had died out by 1956. Hammonds (1950) reported the cross sectional and modified cross sectional approach to curriculum development were common. Although no major changes occurred in the secondary agricultural curriculum during the 1950's, Hammonds (p. 88) did identify several minor changes:

> Today teachers face the difficulty of finding enough time to teach what they would like to teach. Most states now have good school farm shops and devote considerable time to teaching shop work. The Future Farmers of America has come into the picture with its demand for some teaching time. It is now fairly common practice to set aside individual-problem days. Much more teaching time is devoted to supervised farming than formerly. New categories have been developed to be included in the course, such as land use, farm forestry, home food supply, farm-home beautification and improvement, farm improvement, fire protection, farm safety, farm finance, farm organization, and agricultural exploration and guidance. These developments tend to lessen the time that can be given to the enterprises as such and make extremely unwise the use of teaching time in any unnecessary repetition. Conserving time is now a big problem.

The 1960's and 1970's - Decades of Choice and Concentration

Camp and Crunkilton (1985) identified the Vocational Education Act of 1963 as one of the ten major events in the history of agricultural education. The 1963 Act did have a major impact on the curriculum in agriculture. Before 1963, the objective of vocational agriculture was to prepare students for careers in farming. After 1963, the objective of vocational agriculture was to prepare students for a wide variety of careers in agriculture including farming careers and off-farm agricultural occupations (United States Office of Education, 1966). In reviewing the effects of the 1963 act on vocational agriculture, W. W. Arnold, Assistant Commissioner for Vocational and Technical Education in the United States Office of Education, indicated (1965, p. 4), "The greatest need for change will be to revise the instructional program so that it will include other agricultural occupations in addition to farming."

The major instructional areas in agriculture were expanded to include: (a) agricultural production; (b) agricultural supplies; (c) agricultural mechanics; (d) agricultural products; (e) ornamental horticulture; (f) forestry; (g) agricultural resources; and (h) other agriculture (Stevens, 1966). Employment surveys were conducted to

determine where employees were needed. The task analysis approach to curriculum development, which had lain relatively dormant for several decades, was revived (Drawbaugh, 1966) to determine what tasks were involved in these new occupational areas. (Between 1964 and 1966, nearly every issue of The Agricultural Education Magazine contained at least one article on the results of an occupational analysis on some agricultural occupation.) National studies on needed competencies in various agricultural occupations were conducted to serve as the foundation for the curriculum in the new areas of agriculture (McCracken & Yoder, 1975; McClay 1978).

The structure of the high school curriculum was altered to accommodate the new areas of agriculture. In many states, the curriculum emphasis in the first two years of vocational agriculture was still a cross section approach. Students learned the basics in several areas of agriculture such as animal science, agronomy and agricultural mechanics in the first two years. Roberts (1971, p. 164) called this approach to the curriculum the "core" approach. In the junior and senior year, students were allowed to choose an area of concentration of specialization (Bullard, 1964; Roberts, 1971; Slater, 1966). Junior and senior students who desired to be farmers continued their studies using the cross sectional or modified cross sectional approach. Students who desired to specialize in off-farm agricultural occupations such as horticulture or agricultural mechanics could follow several routes.

In some states, such as Alabama, the agriculture teacher was expected to provide individualized instruction to the juniors and senior in the area of their concentration (Baker, 1966). In other states, such as Ohio, specialized courses were moved to a centrally located vocational school which served several high schools (Russo, 1965). Students spent the entire day at the school with most of the time devoted to the specialized curriculum. They received both theory and laboratory experiences. In other states, such as Indiana, junior and senior students would spend half a day at a centrally located vocational school learning the agricultural specialty and then spend the remainder of the day back at their local high school in the traditional academic classes.

One trend which emerged in a few localities during the 1960 and 1970 era was the modular approach to curriculum development. In some schools, the curriculum was broken into small modular components. Students could pick and choose which modules they wanted to study. The modules were often designed to cover a grading period or a semester. In Janesville, Wisconsin, one teacher taught 16 different semester courses (Hensel, 1965). In some multiple teacher departments, students could choose from over 30 different modules in agriculture. Examples of modules were advanced livestock production, farm electrification, leadership development, livestock evaluation, soybean production and gardening.

Scarborough (1965) indicated there was considerable discussion in the profession over exactly what was meant by the term modular instruction. In some schools, the modular approach meant a different schedule in agriculture each day. A freshman student in agriculture might meet for three consecutive 15 minute modules on Monday, one 15 minute module on Tuesday, five 15 minute modules on Wednesday, none on Thursday, and two on Friday (See Anderson & Hanson, 1966, for details on how this approach was used in a Nevada school).

Students in the 1960 and 1970 era had the opportunity to select the agriculture curriculum of their choice and could concentrate in a specific area. The content of the off-farm curriculum was based on task analysis.

The 1980's - A Decade of Concern

In 1982, Adler published The Paideia Proposal which was the beginning of more than 25 reports on the status of education in America (Passow, 1984). These reports generally indicated that American education was in bad shape and should return to the basics. It was generally recommended that tough new graduation requirements be implemented, standards be increased, and electives be reduced. The impact of these reports and resulting action on the curriculum in vocational agriculture is not yet clear, but they do appear to be having a detrimental effect on enrollment in vocational education (Price, 1985).

The National Commission on Secondary Vocational Education (1984), after considerable study, made several recommendations concerning the curriculum in vocational education. The commission suggested the gap between "academic" and "vocational" courses needs to be bridged. The commission also indicated business and industry need to be involved in the development of the curriculum, and the curriculum should be based on occupational analysis.

The passage of the Carl Perkins Act of 1984 was also of concern to agricultural educators. The act emphasized program improvement, innovation and development instead of maintenance (Case, 1985). The impact of this act on the curriculum in vocational agriculture is presently unclear.

Both the Perkins Act and the educational reform studies are major concerns of the agricultural education profession during the 1980's. Only time will tell the impact of these events on the curriculum in agricultural education.

Conspectus

Scarborough writes of the leader who failed (1965, p. 128), "He misunderstood the past, he miscalculated the present and ignored the future." In the early 1960's, several members of the profession indicated agricultural education was at the crossroads, and it was (Krebs, 1961). These writers believe the profession is again at a crossroads. It is vitally important that the profession carefully plan which route to take for the future. In the past, the curriculum has been characterized by change, confusion, compromise, calm, choice and concentration. We believe decisions made in the next year about the organization and structure of the curriculum in vocational agriculture will be of utmost importance to the continued vitality of the program. An understanding of the past will help in choosing the correct route for the future.

Based upon our analysis of the past and the events of the present, we would offer the following recommendations concerning the future for curriculum development in vocational agriculture:

1. The content needs to be packaged in a modular fashion. Because of the emphasis on increased standards, many students will not be able to spend two or three hours each day in the junior and senior year in vocational agriculture. Semester courses which meet for one class period per day should be considered.

2. There should be an introductory course in vocational agriculture which serves as the gateway for the remainder of the courses in agriculture. This introductory course should be based upon the cross section approach to curriculum development.

3. Since the Carl Perkins Act places an emphasis on the mathematical and scientific aspects of vocational education, attention should be given to identifying the science and math concepts which are taught in agriculture courses. State departments of education then should be encouraged to give science credit for these courses. Bricker (1911) reminds us the first courses in agriculture were taught by science teachers and emphasized the scientific aspects of agriculture. This approach to the curriculum would help bridge the gap identified by the National Commission on Secondary Vocational Education.

4. The curriculum in the upper grades should be based on occupational analysis, but the profession should carefully heed the warning of Lathrop (1922) that conditions change and new competencies emerge in the various agricultural occupations. Many of the competency studies conducted ten to fifteen years ago are now out of date. The profession needs to constantly update the competency studies on which the curriculum in vocational agriculture is based.

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