INTRODUCTORY ANIMAL SCIENCE
ANSC 1331

INSTRUCTOR: Dr. John Michael Mehaffey
Room 103
Agriculture Building

OFFICE HOURS: MW 8 – 12 am
Office: 936-468-4319
E-mail: mehaffeyjm@sfasu.edu

LECTURE: TR 8 – 9:15 am Vera Dugas Liberal Arts North 102

TEXT: Introduction to Animal Science text power points on D2L.

COURSE DESCRIPTION:

This course will explore how the interactions of breed selection, environmental conditions, mating systems, comparative digestive systems, reproductive physiology, and nutrition all affect the final product in production agriculture. This knowledge will allow the student to have a better understanding how livestock systems function and the impact animal production has on world and human experience.

ANSC 1331 “Introductory Animal Science” (3 credits) The class meets two times a week (two 75-minute lectures) for 16 weeks and also meets for a 120-minute final exam. Students are required to take weekly quizzes, four major exams and a comprehensive final examination. Students are also required to submit at least three assignments that are completed outside of normal class time. In addition to required exams, each student must produce a group term poster and presentation over assigned animal production topic to the class. These requirements take at least 6 hours of out-of-class student work each week to complete.

Objectives

1. To become able to recognize and label the external and internal parts and structure of farm animals
2. To gain a general understanding of the beef, sheep, goat, swine, poultry, companion animal and equine industries
3. To become knowledgeable of terminology used in animal science
4. To gain a basic understanding of nutrition, physiology, genetics, animal health and welfare

Updated: August 2023
Program Learner Outcomes

1. The student will demonstrate competence of technical subject matter areas in agriculture including plant and animal sciences, agricultural economics, and mechanized agriculture.
2. The student will exhibit problem-solving skills based on quantitative and analytical reasoning.
3. The student will demonstrate effective communication skills
4. The student will exhibit leadership and other interpersonal skills needed for career placement and advancement.

Student Learning Outcomes

1. Student will demonstrate competence of technical subject matter in animal and poultry sciences (ANSC 1331)
2. The student will demonstrate effective oral and written communication skills
3. The student will exhibit leadership and other interpersonal skills needed for career placement and advancement
4. The student will exhibit problem-solving skills based on quantitative and analytical reasoning
5. The student will demonstrate knowledge of farm and ranch skills. (ANSC 1331)

Lecture Attendance

Lecture attendance is mandatory and will be taken daily; if you are late you will be counted absent. You will be given three absences, for each absence after three your grade will be reduced by 10%.

Excuses can either be provided as hard copy or electronically. Documentation for excused absences is due within 10 days of the absence, and no documentation from previously will be accepted past the Friday before finals week at 5 PM.

For reference, below are examples of excused absences.

1. Approved university activities (require documentation from sponsor and advanced notice, see below)
2. Death or major illness of an immediate family member (requires documentation and notice as soon as possible)
3. Major illness of yourself (requires a doctor’s note).

If you miss class for any other reason and feel your absence should be excused, you must provide me with a typed memo explaining why the absence should be excused and provide appropriate documentation. This memo must be provided within one week of the absence. All other absences are considered unexcused.

Updated: August 2023
PUNCTUALITY POLICY

Tardy attendance will be counted as unexcused absences at the discretion of the professor. Tardiness is an interruption to both the professor and learning of fellow students.

Academic Integrity (4.1)

The Code of Student Conduct and Academic Integrity outlines the prohibited conduct by any student enrolled in a course at SFA. It is the responsibility of all members of all faculty, staff, and students to adhere to and uphold this policy. Articles IV, VI, and VII of the new Code of Student Conduct and Academic Integrity outline the violations and procedures concerning academic conduct, including cheating, plagiarism, collusion, and misrepresentation. Cheating includes, but is not limited to: (1) Copying from the test paper (or other assignment) of another student, (2) Possession and/or use during a test of materials that are not authorized by the person giving the test, (3) Using, obtaining, or attempting to obtain by any means the whole or any part of a non-administered test, test key, homework solution, or computer program, or using a test that has been administered in prior classes or semesters without permission of the Faculty member, (4) Substituting for another person, or permitting another person to substitute for one’s self, to take a test, (5) Falsifying research data, laboratory reports, and/or other records or academic work offered for credit, (6) Using any sort of unauthorized resources or technology in completion of educational activities.

Plagiarism is the appropriation of material that is attributable in whole or in part to another source or the use of one’s own previous work in another context without citing that it was used previously, without any indication of the original source, including words, ideas, illustrations, structure, computer code, and other expression or media, and presenting that material as one’s own academic work being offered for credit or in conjunction with a program course or degree requirements.

Collusion is the unauthorized collaboration with another person in preparing academic assignments offered for credit or collaboration with another person to commit a violation of any provision of the rules on academic dishonesty, including disclosing and/or distributing the contents of an exam. Misrepresentation is providing false grades or résumés; providing false or misleading information in an effort to receive a postponement or an extension on a test, quiz, or other assignment for the purpose of obtaining an academic or financial benefit for oneself or another individual or to injure another student academically or financially.
Withheld Grades *Semester Grades Policy (5.5)*

Ordinarily, at the discretion of the instructor of record and with the approval of the academic chair/director, a grade of WH will be assigned only if the student cannot complete the coursework because of unavoidable circumstances. Students must complete the work within one calendar year from the end of the semester in which they receive a WH, or the grade automatically becomes an F. If students register for the same course in future terms the WH will automatically become an F and will be counted as a repeated course to compute the grade point average. For additional information, go to https://www.sfasu.edu/policies/course-grades-5.5.pdf.

**Students with Disabilities**

To obtain disability-related accommodations, alternate formats, and/or auxiliary aids, students with disabilities must contact the Office of Disability Services (ODS), Human Services Building, and Room 325, 468-3004 / 468-1004 (TDD) as early as possible in the semester. Once verified, ODS will notify the course instructor and outline the accommodation and/or auxiliary aids to be provided. Failure to request services promptly may delay your accommodations. For additional information, go to http://www.sfasu.edu/disabilityservices/.

**Student Wellness and Well-Being**

SFA values students’ overall well-being, mental health and the role it plays in academic and overall student success. Students may experience stressors that can impact both their academic experience and their personal well-being. These may include academic pressure and challenges associated with relationships, emotional well-being, alcohol and other drugs, identities, finances, etc.

If you are experiencing concerns, seeking help, SFA provides a variety of resources to support students’ mental health and wellness. Many of these resources are free, and all of them are confidential.

**On-campus Resources:**
**The Dean of Students Office** (Rusk Building, 3rd floor lobby)
www.sfasu.edu/deanofstudents
936.468.7249
dos@sfasu.edu

**SFA Human Services Counseling Clinic** Human Services, Room 202
www.sfasu.edu/humanservices/139.asp
936.468.1041
The Health and Wellness Hub “The Hub”
Location: corner of E. College and Raguet St.

To support the health and well-being of every Lumberjack, the Health and Wellness Hub offers comprehensive services that treat the whole person – mind, body and spirit. Services include:

- Health Services
- Counseling Services
- Student Outreach and Support
- Food Pantry
- Wellness Coaching
- Alcohol and Other Drug Education

www.sfasu.edu/thehub
936.468.4008
thehub@sfasu.edu

Crisis Resources:
- Burke 24-hour crisis line: 1-800-392-8343
- National Suicide Crisis Prevention: 9-8-8
- Suicide Prevention Lifeline: 1-800-273-TALK (8255)
- Crisis Text Line: Text HELLO to 741-741
# TENTATIVE SCHEDULE

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<thead>
<tr>
<th>Week</th>
<th>Tuesday</th>
<th>Thursday</th>
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<tbody>
<tr>
<td>1 – 8/29</td>
<td>Introduction to Animal Science</td>
<td>Terminology; Contribution of Animals to Society</td>
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<tr>
<td>2 – 9/5</td>
<td>Breeds of Livestock</td>
<td>Breeds of Livestock</td>
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<tr>
<td>3 – 9/12</td>
<td>Breeds of Livestock</td>
<td>Livestock Production Systems</td>
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<tr>
<td>4 – 9/19</td>
<td>Livestock Production Systems</td>
<td>Animal Behavior</td>
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<td>5 – 9/26</td>
<td>Animal Health</td>
<td>Animal Welfare</td>
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<td>6 – 10/3</td>
<td>Market Coordination</td>
<td>Market Coordination</td>
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<td>7 – 10/10</td>
<td>Food Safety and Consumer Concerns</td>
<td>Genetics</td>
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<td>8 – 10/17</td>
<td>Animal Breeding</td>
<td>Anatomy of the Male</td>
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<td>9 – 10/24</td>
<td>Anatomy of the Female</td>
<td>Artificial Insemination &amp; Embryo Transfer</td>
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<td>10 – 10/31</td>
<td>Hormones</td>
<td>Biotechnology</td>
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<tr>
<td>11 – 11/7</td>
<td>Introduction to Nutrition</td>
<td>Comparative Digestive Systems</td>
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<td>12 – 11/14</td>
<td>Nutrients and Feedstuffs</td>
<td>Nutritional Requirements</td>
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<td>13 – 11/21</td>
<td>NO CLASS</td>
<td>NO CLASS</td>
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<td>14 – 11/28</td>
<td>Pets and Companion Animals</td>
<td>Careers and Career Preparation</td>
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<tr>
<td>15 – 12/5</td>
<td>Animals in Sustainable Agriculture</td>
<td>Animal Rights and Animal Welfare</td>
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<tr>
<td>16 – 12/12</td>
<td>FINAL EXAM</td>
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**FINAL EXAM, DECEMBER 12th 8 – 10 am**

### POINT SYSTEM:

<table>
<thead>
<tr>
<th>Component</th>
<th>Points</th>
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<tbody>
<tr>
<td>Lecture Exams</td>
<td>400</td>
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<tr>
<td>FINAL EXAM</td>
<td>100</td>
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<tr>
<td>D2L Quizzes</td>
<td>200</td>
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<tr>
<td>Discussion Participation</td>
<td>100</td>
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<tr>
<td>4 Critical Thinking Essays</td>
<td>100</td>
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<tr>
<td><strong>TOTAL</strong></td>
<td><strong>1000</strong></td>
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### GRADING SYSTEM:

<table>
<thead>
<tr>
<th>Grade</th>
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<tbody>
<tr>
<td>A</td>
<td>90%</td>
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<tr>
<td>B</td>
<td>80 – 89%</td>
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<tr>
<td>C</td>
<td>70 – 79%</td>
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<td>D</td>
<td>60 – 69%</td>
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<tr>
<td>F</td>
<td>LESS THAN 60%</td>
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**Lecture Exams**

Lecture exams will consist of material covered prior to each of the four exams in lecture. Material is open to class discussion, presented material and group presentations. Exams will consist of multiple choice, true/false, matching, and short answer questions.

*Updated: August 2023*
Discussion Quizzes
Discussion quizzes will consist of material covered in the lecture topics students will review on D2L.

Critical Thinking Essays

Breeds of Livestock
Students with go to the Links page and choose a breed of livestock from the list, and write a 2-page summary over the origin, original use/change in current use, breed characteristics, and any other interesting facts about the breed of choice.

Livestock Systems
Students will gain an understanding of global agriculture and thus where certain types of agriculture are practiced and why. The students will have to write a two-page summary over the type of production system they feel would have most likely been used by their ancestors before coming to/or that practiced in America.

Reproduction and Nutrition in Livestock
The second assignment will be over reproduction systems and nutrition in the livestock industry. This can cover topics such as Artificial Insemination, Embryo Transfer, In vitro, Natural Selection, Crossbreeding, to rearing systems within different species, or the student can discuss feedstuffs and nutrient requirements of their assigned livestock specie. This will allow the student to further investigate reproduction systems and nutritional needs in the livestock industry, and have a better understanding for why animals are bred and raised in the current manners in the livestock industry. This will allow the student to evaluate the cost involved in the systems and put their quantitative skills to the test to better understand what systems are the most cost effective for animal production.

Animal Health and Types of Livestock
The third assignment will allow the students to discuss the behavioral and health issues associated with their assigned specie of animal. They may choose one health issue or broadly cover several.

Lecture Topic Descriptions

Introduction to Animal Science
Students will be able to define animal science and all of its component parts; describe how, why, and when domestication occurred; give an overview of the distribution of the agricultural animals worldwide; explain the contributions of domestic animals to humans and state why they are so important to life as we know it; and describe the worldwide livestock revolution and its implications.

The Value of Animals to Humanity
Students will describe the value of animal products in providing for the world’s
food; explain the current rates of growth or decline of animal products on a worldwide basis; elaborate on the milk-producing species, state their importance to world milk production, and understand what is happening to world milk production; describe the value of eggs in feeding the world's people; develop a modest understanding of some miscellaneous food uses for the world's animals; explain the value animal products in the human diet; and give a good overview of all the many nonfood uses humans have for the world's animals.

**Factors Affecting World Agriculture Structure**
Students will be able to explain the process of adaptation; list the five major categories of environmental stressors and tell how animals react to them; describe the climatic environments of the world; summarize how climate and natural vegetation are tied together; explain how social and cultural differences affect agriculture; and integrate information on levels of economic and agricultural development to explain how they are linked.

**Worldwide Systems of Agriculture Production**
Students will gain the ability to identify the broad types of agricultural production systems found worldwide; describe the use of animals within each agricultural type; compare and contrast the livestock industries of developed and developing countries; and differentiate between commercial systems of agriculture and subsistence systems and their goals.

**Introduction to Nutrition**
Students will define nutrition and understand the reason for studying nutrition; explain what a nutrient is and know the difference between dietary essential and nonessential nutrients, classify the nutrients, and list the 50 dietary essential nutrients; describe the general uses of nutrients in the body and discuss the major factors that affect an animal's needs for nutrients; explain in detail the three major types of animal trials that nutritionists use; define and explain feedstuff analysis; and summarize the feeds evaluation procedures described in this chapter.

**The Gastrointestinal Tract and Nutrition**
Students will be able to describe the methods of the breakdown of food; classify digestive systems according to the stomach type and type of diet consumed; describe the steps of digestion; identify the differences and similarities in the digestive process of animals; explain the importance of the complex stomach of the ruminant and its benefits to the animal; and an understanding of the basic reproduction systems in livestock including anatomy of the male and female, mating, gestation, parturition, and alternative mating systems.

**Feedstuffs Classification**
Students will describe feedstuff classification and identify feedstuff categories and characteristics; and identify the nutritive characteristics in various feedstuff categories.
Genetics
Students will explain the role that genetics plays in animal production; describe the location of genes within a cell; explain the process of cellular division that ultimately produces cells containing only half of the genetic information; describe how variation in traits is passed from parent to offspring; describe how gene frequencies change within a population; explain the concept of relationship between individuals; describe several systems of mating individuals; and summarize the implications of genetic engineering.

Animal Breeding
Students will define animal breeding and explain its contribution to animal science; describe the general principles of animal breeding as it applies to beef cattle; define heritability and genetic correlations; explain how to use EPDs in beef cattle breeding; describe the uses and benefits of a beef cattle sire summary; describe the general principles of animal breeding as it applies to dairy cattle; gain an understanding of evaluating breeding animals based on performance data, phenotype and genotype; explain why associations among traits are so important to dairy cattle selection; identify goals on traits of emphasis in dairy cattle selection; describe the DHI system and explain its use in dairy cattle selection; list the ways in which swine genetic improvement is similar to and different from the other major species; describe the difference in the way breeds influence the swine industry compared to the other industries; and describe the general principles of animal breeding as it applies to sheep.

Biotechnology and Genetic Engineering
Students will describe the magnitude of the biotechnology industry in the United States; define biotechnology and explain how genetic engineering is a part of biotechnology; describe the recombinant DNA technology; describe current and future uses of genetic engineering as it applies to field crop, food crop, and livestock production; describe developing uses of rDNA organisms; explain the regulatory mechanism in place to control genetically engineered organisms; and identify some of society’s concerns about genetic engineering.

Animal Reproduction
Students will describe how the endocrine system drives the production of gametes; identify anatomy of the reproductive system; compare and contrast the functions of the male and female gonads; understand conception, pregnancy, and parturition; discuss the considerable influence of the environment on reproductive function; and describe the uses and advantages of the technologies employed in animal reproduction.

Animal Behavior
Students will describe the overall field of animal behavior and explain why it is important; explain the individual areas of study in animal behavior; cite the general effects of handling on livestock production; discuss how animal temperament and handling interact; describe the role of fear and fear memories.
in handling; list the benefits of training animals to be handled and to accept restraint; cite the effects of novelty, vision, noise, and shadows on livestock movement; discuss the concept of flight zone; identify the role of genetics in handling; and outline the basics of handling facility layout.

**Animal Health**
Students will explain the nature of disease; describe the causes of disease in general terms; outline a procedure for diagnosing disease; describe the body’s defenses against disease; describe the elements of herd health; identify the effects of animal disease on human well-being; and describe the elements of regulatory animal medicine.

**Market Coordination in Beef, Pork, and Poultry Industries**
Students will describe market coordination and vertical integration and explain their significance in the beef, pork, and poultry industries; explain how the biological production cycle, the genetic base, industry stages, geographic concentration, and operation size contribute to or limit vertical integration; list the motives and limitations to the industry for integrating an industry; explain the disadvantages to integrating an animal industry; and compare the probability of increased integration in the three major meat-producing industries.

**Beef Cattle**
Students will explain the place of beef cattle in the U.S. agricultural economy; understand the reasons the U.S. has a large beef industry and explain the purposes of beef cattle in the U.S. and abroad; give a brief history of the beef cattle industry in the U.S.; describe the structure and geographic location of the beef industry and discuss why the industry segments are located where they are; discuss the role of genetic selection in the beef industry and understand the impacts of the breeds revolution in the U.S.; describe feeding strategies of the U.S. beef cattle industry; understand the major health challenges to beef cattle management; explain the nutritional benefits of beef in the human diet; and discuss current trends and issues facing the beef production and their future impacts to the industry.

**Dairy Cattle**
Students will explain the place of dairy cattle in U.S. agriculture; explain the reasons for the size of the U.S. dairy industry; give a brief history of the dairy industry in the United States; describe the structure of the U.S. dairy industry; give an accurate accounting of where the dairy industry is located geographically in the U.S.; give a brief synopsis of DHIA and its functions; and identify and place in context the role of genetics in the dairy industry.

**Poultry**
Students will explain the place of poultry in U.S. agriculture; describe the purpose and the value of the different poultry industry segments; give a brief history of the poultry industry in the United States; describe the poultry industry segments and
structure; give an accurate accounting of where the poultry industry is located in the United States; quantify the role of genetics in the poultry industry; and explain the role of breeds in the U.S. poultry industry.

**Swine**
Students will explain the place of swine in U.S. agriculture; describe the purpose and the value of the swine industry in the United States; give a brief history of the swine industry in the United States; describe the swine industry segments and structure and explain how that structure is changing; give an accurate accounting of where the swine industry is located in the United States and explain how that location is changing; quantify the role of genetics in the swine industry; explain the role of breeds in the U.S. swine industry and discuss how that role is changing; describe the traits of the ideal market hog.

**Sheep and Goats**
Students will explain the place of sheep and goats in U.S. agriculture; explain the reasons for the size of the sheep and goat industries and describe how they are changing; give a brief history of the sheep and goat industries; describe the structure of the sheep and goat industries; give an accurate accounting of where the sheep and goat industries are located in the United States; identify the elements of a practical approach to breeding and genetics in the sheep and goat industries; and explain the significance of breeds in the U.S. sheep and goat industries and describe the general classifications of sheep and goat breeds.

**Horses**
Students will Put the horse industry in economic context; compare historical and current uses of the horse and understand the very unique features that make the horse industry different from all the rest of the commercial livestock industries; give a historical perspective on horses in North America and the United States; describe the change in the purpose of the horse in the developed world over the course of the 20th century; describe the structure and geographic location of the horse industry as far as available information will allow; explain the basics of horse genetics, especially color genetics; classify the types of horses; discuss the important tasks to be accomplished if a mare is to reproduce; cite the basics of how to feed a horse; identify and discuss areas of concern for the horse industry; and discuss some of the opportunities for growth in the horse industry.

**Pets and Companion Animals**
Students will describe the place of the pet species in the lives of the people of the United States; discuss the types of pets that find service in the United States; give a historical perspective to the keeping of pets; discuss the geographic differences in pet ownership in the United States; compare the roles of breeds and breeding programs in pet and livestock species; describe the rudiments of reproductive management in the dog and cat; explain the nutritional information found on a container or bag of pet food; describe some common health challenges to pets; and cite the trends shaping the ownership of pets in the
United States.

**Careers and Career Preparation**
Students will describe the general job market in agriculture and animal science; identify the general areas of curriculum in animal science and the careers associated with each area; and develop a strategy for directing your education toward a satisfying career.

**Food Safety and Consumer Concerns**
Students will describe the complexities of the food safety issues facing the food industry; discuss the basics of the history of food safety during the 20th century; describe the magnitude of the problem of food safety to consumers; identify the most important of the foodborne pathogens; differentiate between the roles of various government agencies in providing for a safe food supply; describe the current and changing roles of FSIS in food safety; describe HACCP and state its purpose and principles; explain the level of safety associated with bovine somatotropin, growth-promoting hormones, and antibiotics in animal production; describe the value of food irradiation.

**Animal Welfare and Animal Rights**
Students will describe the basis for the general concern, but the lack of a consensus opinion, relating to animal welfare and animal rights; compare and contrast animal welfare issues and animal rights issues. If possible, reconcile whether animal rights and animal welfare are different or the same issue to you; cite the major pieces of legislation that have been passed in the United States regarding animal welfare and animal rights; describe the major philosophical differences among various groups that have an interest in this subject; and outline a view of the issues likely to be debated for legislative action.

**Animals in Sustainable Agriculture**
Students will define and describe sustainable agriculture; describe sustainable practices; explain the “systems philosophy” of sustainable agriculture; elaborate on the place of animals in sustainable systems; identify a monoculture system and contrast it to a diversified system; identify areas of concern for making livestock systems more sustainable; and explain the “lifestyle element” of sustainable agriculture.