BASF

Plant Science

CERTIFICATION

CERTIFICATION BLUEPRINT

CERTIFICATION EXAM OVERVIEW

The BASF Plant Science Certification confirms that individuals have the essential knowledge and skills for a variety of plant, natural, and environmental science related fields. The certification exam, hosted on the iCEV testing platform, consists of 100 questions. It evaluates understanding of plant anatomy, crop production, water resources, and plant pests. The exam must be proctored in a controlled environment. Proctoring guidelines can be found at www.icevonline.com/proctoring-guidelines.

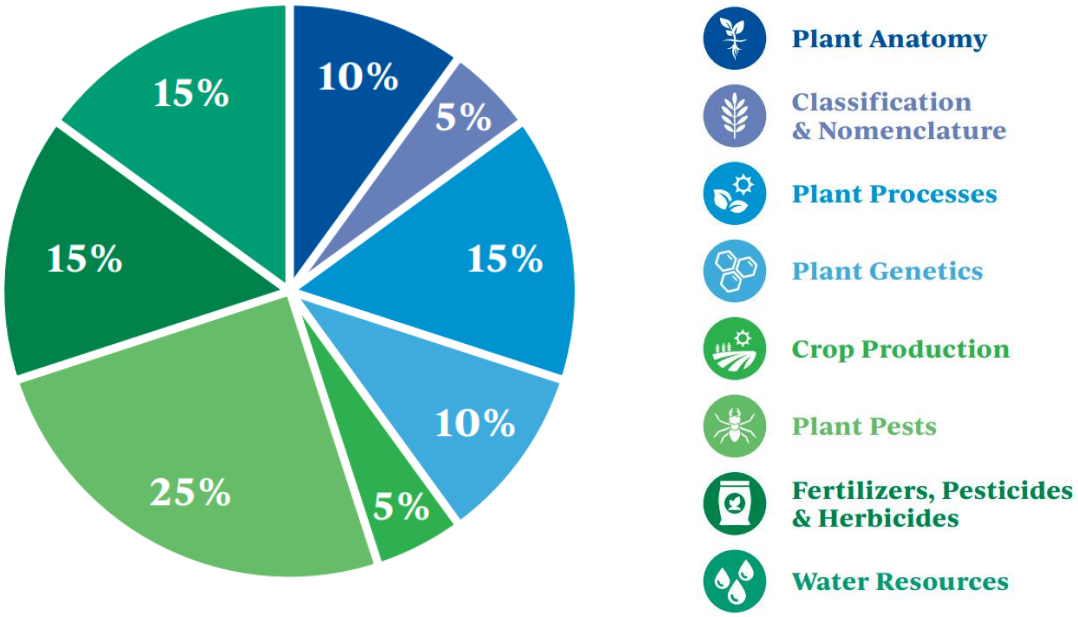
More information about the certification and testing platform can be found at: https://www.icevonline.com/plant-science.

ABOUT BASF

At BASF, we create chemistry for a sustainable future by combining economic success with environmental protection and social responsibility. With more than 117,000 employees in nearly all sectors and almost every country of the world, our portfolio is organized into six segments: Chemicals, Materials, Industrial Solutions, Surface Technologies, Nutrition & Care and Agricultural Solutions.

Learn more at: https://agriculture.basf.us/community-relations/educational-resources/plant-science-certification.html

INDUSTRY STANDARD OVERVIEW



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LEARNING OBJECTIVES & INDUSTRY STANDARDS

1. Plant Anatomy

1.1 Anatomy of Plants

1.1.1 To identify plant structures and functions
1.1.2 To describe the structure of plant cells
1.1.3 To explain the process of reproduction in plants

2. Classification & Nomenclature

2.1 Scientific Classification & Nomenclature of Plants

2.1.1 To identify different plant types
2.1.2 To identify techniques used in plant classification
2.1.3 To evaluate the plant naming system
2.1.4 To identify different types of organisms in an ecosystem
2.1.5 To evaluate the levels of organization in multicellular organisms

3. Water Resources

3.1 Water Resources

3.1.1 To describe the influence of weather factors on water
3.1.2 To describe the influence of climatic factors on water
3.1.3 To define watershed boundaries
3.1.4 To identify potential sources of water pollution
3.1.5 To discuss policies of ecology management

3.2 Water Measurement

3.2.1 To identify the origin and use of water in a watershed
3.2.2 To describe the dynamics of a watershed
3.2.3. To discuss the measurement of water quality and water resources in a watershed
3.2.4 To describe how water quality is impacted by natural and anthropogenic influences
3.2.5 To identify water and watershed conservation practices

4. Plant Genetics

4.1 Plant Genetics

4.1.1 To identify the process of cell reproduction and growth
4.1.2 To evaluate the importance of DNA in plant cells
4.1.3 To discuss terms related to plant genetics
4.1.4 To evaluate cell structures and functions
4.1.5 To identify the history and use of plant breeding
4.1.6 To discuss technologies used in agricultural plants

5. Crop Production

5.1 Crop Production in the United States

5.1.1 To discuss how environmental factors affect the distribution of crop production in the United States
5.1.2 To identify and describe major sectors of crop production
5.1.3 To examine major crops grown in each geographic region of the United States

5.2 Hydroponics

5.2.1 To analyze the process of growing plants using hydroponics
5.2.2 To identify hydroponic systems and techniques
5.2.3 To evaluate various plants grown hydroponically

6. Plant Pests

6.1 Plant Pests: Bacterial Diseases

6.1.1 To identify bacterial diseases associated with common plants and crops
6.1.2 To analyze the characteristics associated with common bacterial diseases of plants
6.1.3 To identify the uses and types of prevention and treatment methods
6.1.4 To identify the scientific names, characteristics, environmental conditions, prevention methods and treatment methods
6.1.5 To identify bacterial diseases

6.2 Plant Pests: Fungal Diseases

6.2.1 To identify plant diseases common to horticulture and agronomic crops
6.2.2 To reveal the impact plant diseases have on fruits, plants and agricultural crops
6.2.3 To analyze methods of plant disease and control
6.2.4 To identify fungal disease characteristics, environmental conditions, prevention methods and treatment methods
6.2.5 To identify fungal diseases

6.3 Plant Pests: Viruses

6.3.1 To identify viruses associated with common plants and crops
6.3.2 To analyze the characteristics associated with common viruses of plants
6.3.3 To identify viruses

6.4 Plant Pests: Chewing Insects

6.4.1 To identify pests associated with common plants and crops
6.4.2 To analyze the characteristics associated with common pests of plants
6.4.3 To identify the uses and types of pesticides
6.4.4 To identify plant pest characteristics, effects on plants, prevention methods, treatment, life cycles and economic impact
6.4.5 To identify chewing insects

6.5 Plant Pests: Sucking Insects

6.5.1 To identify pests associated with common plants and crops
6.5.2 To analyze the characteristics associated with common pests of plants
6.5.3 To identify the uses and types of pesticides

6.6 Plant Pests: Vertebrates

6.6.1 To identify pests associated with common plants and crops
6.6.2 To analyze the characteristics associated with common pests of plants
6.6.3 To identify vertebrate pests

6.7 Plant Pests: Weeds

6.7.1 To identify the major classifications of weeds
6.7.2 To analyze different prevention and treatment methods associated with weeds
6.7.3 To identify crop losses due to weeds

7. Plant Processes

7.1 Fundamental Plant Processes

7.1.1 To identify the importance of plants
7.1.2 To discuss the cell cycle
7.1.3 To discuss the plant life cycle
7.1.4 To identify factors which affect plant growth and development
7.1.5 To evaluate the effects of plant growth regulators
7.1.6 To discuss important plant processes

7.2 Plant Nutrition

7.2.1 To identify functions of plant parts
7.2.2 To evaluate plant processes
7.2.3 To analyze the structure and function of organic molecules in plants
7.2.4 To identify plant growth requirements
7.2.5 To evaluate the needs of soil and water for plants
7.2.6 To identify nutrients and nutrient deficiencies in plants
7.2.7 To evaluate the impact of human activity on ecosystems

7.3 Plant Evaluation

7.3.1 To analyze the anatomy and physiology of plants
7.3.2 To evaluate the environmental impact made on plants
7.3.3 To discuss the physiological disorders impacting plants
7.3.4 To identify diseases affecting plants
7.3.5 To discuss the application of plant evaluation in both urban and agricultural settings

8. Fertilizers, Pesticides & Herbicides

8.1 Fertilizers & the Environment

8.1.1 To gain a basic knowledge of fertilizers
8.1.2 To learn the proper application of plant and crop fertilizers
8.1.3 To learn the importance of safety and environmental concerns related to fertilizers

8.2 Pesticides & Herbicides: An Introduction

8.2.1 To identify a number of common pests
8.2.2 To become familiar with the various types of pesticides and herbicides
8.2.3 To learn the proper pesticide and herbicide safety methods
8.2.4 To become familiar with IPM (integrated pest management)