

## **HORTICULTURE DEPARTMENT COURSE CONTENT AND BOOKS TO BE USED**

### **Introduction to Horticulture (1-2) 2**

Content: Classification of horticultural crops, the value of Turkey in terms of horticultural crops cultivation, biological characteristics of horticultural crops, ecological requirements of horticultural crops, physiological characteristics of horticultural crops, propagation of horticultural crops, fruit, vegetable garden and vineyard establishment, annual maintenance works.

Textbook:

- General Horticulture, Y.S. Ağaoğlu, H. Çelik, M. Çelik, Y. Fidan, Y. Gülşen, A. Günay,
- N. Halloran, A.I. Köksal, R. Yanmaz, Ankara University Faculty of Agriculture Education, Research and Development Foundation Publications No: 4, 1995.

### **General Vegetable Production (1-2) 2**

Content: Definition and classification of vegetable cultivation, development of vegetable cultivation in the historical process, its place in the national economy, vegetable cultivation according to our regions, ecological requirements, biological characteristics, physiological characteristics, propagation techniques of vegetables, maintenance works, harvest criteria, classification, packaging, marketing and modern vegetable cultivation.

Textbook:

- Vegetable Cultivation, Volume: I., Atilla Günay,

Izmir, 2005. Auxiliary Textbook:

- Tomato, Pepper and Eggplant Cultivation, Vedat Şeniz, Agricultural Research Support and Development Foundation Publications, No:26, Yalova, 1992
- Special Vegetable Cultivation, Volume: III., Atilla Günay, Ankara University, Faculty of Agriculture, Department of Horticulture, Ankara, 1984.

### **General Fruit Growing (1-2) 2**

Content: Definition and classification of fruit growing, development of fruit growing in the historical process, its place in the national economy, fruit growing according to our regions, ecological requirements, biological characteristics, physiological characteristics, reproduction techniques of fruits, orchard establishment, annual maintenance works, harvest criteria, classification, packaging, marketing and principles of modern fruit growing.

Textbook:

- General Fruit Growing, Sabahattin Özbek, Çukurova University Faculty of Agriculture Textbook, 1975.
- General Fruit Growing, Resul Gerçekçioğlu, Şükriye Bilgener, Arif Soylu, Nobel Publication No: 1280, 2008.

## **General Viticulture (1-2) 2**

Content: The place of grapevine in systematics, the situation of viticulture in the world and in our country, morphology of grapevine, propagation, cultivation systems, cultural practices in viticulture, grape preservation.

Textbook:

- General Viticulture, Hasan ÇELİK, Sabit AĞAOĞLU, Yılmaz FİDAN, Birhan MARASALI, Gökhan SÖYLEMEZOĞLU, Fersa Matbaacılık San. Tic. Ltd. Şti., ANKARA, 1998.

Supplementary Textbook:

- Viticulture, Salih ÇELİK, Anadolu Matbaa Ambalaj San. And Tic. Ltd. Şti., TEKİRDAĞ, 1998.
- Viticulture Technique I, M.Nail ORAMAN, Ankara University Faculty of Agriculture Publications, ANKARA, 1970.
- Viticulture Technique II, M.Nail ORAMAN, Ankara University Faculty of Agriculture Publications, ANKARA, 1972.
- Grape Variety Catalog, Hasan ÇELİK, EKİNOKS, ANKARA, 2006.
- General Viticulture Ibrahim SHUTDOWN, E.U.Agriculture Faculty Offset Basımevi, Bornova/İZMİR, 1995.
- General Viticulture, A.J. Winkler, James A. Cook, W.M.Kliever, Hoyd A.Lider, University of California Press Berkeley and Los Angeles, California University of California Press, Ltd. London, England, 1962.

## **Cool Climate Vegetables (2-2) 3**

Ingredients: Morphological characteristics, cultivation requirements and techniques of vegetables such as kohlrabi, peas, broad beans, Brussels sprouts, artichokes, asparagus, carrots, endive, spinach, red beet, cauliflower, celery, cabbage, parsley, lettuce, leek, chard, rhubarb, salad, garlic, onion, turnip, radish, cress and yam.

Textbook:

- Cultivated Vegetables (Vegetable Cultivation), Hüseyin Vural, Dursun Eşiyok, İbrahim Duman, Ege University, Faculty of Agriculture, Department of Horticulture, Bornova-İzmir, 2000.

Supplementary Textbook:

- Special Vegetable Cultivation, Volume: III., Atilla Günay, Ankara University, Faculty of Agriculture, Department of Horticulture, Ankara, 1984.
- Special Vegetable Cultivation, SERLER, Volume: II., Atilla Günay, Ankara University, Faculty of Agriculture, Department of Horticulture, Ankara, 1992.

- Vegetable Cultivation, Volume: I., Atilla Günay, İzmir, 2005.

- Vegetable Cultivation, Volume: II., Atilla Günay, İzmir, 2005.

### **Horticulture Production Technique (2-2) 3**

Content: Practical training on fruit, vegetable and vineyard cultivation and breeding is provided.

Textbook:

- Cultivated Vegetables (Vegetable Cultivation), Hüseyin Vural, Dursun Eşiyok, İbrahim Duman, Ege University, Faculty of Agriculture, Department of Horticulture, Bornova-İzmir, 2000.
- Special Vegetable Cultivation, Volume: III., Atilla Günay, Ankara University, Faculty of Agriculture, Department of Horticulture, Ankara, 1984.
- Special Vegetable Cultivation, Volume: IV., Atilla Günay, Ankara University, Faculty of Agriculture, Department of Horticulture, Ankara, 1992.
- Special Vegetable Cultivation, SERLER, Atilla Günay, Volume: II., Ankara University, Agriculture Faculty, Department of Horticulture, Ankara, 1992.
- Vegetable Cultivation, Volume: I., Atilla Günay, İzmir, 2005.
- Vegetable Cultivation, Volume: II. Atilla Günay,, İzmir, 2005.
- Mushroom Cultivation, Atilla Günay, İlke Kitapevi Publications, No: 22, Ankara, 1995
- Culture Mushroom Cultivation, Iclal Erken, Koca Oluk Publishing House Istanbul, 2000
- Greenhouse Vegetable Production, Ayten Sevgican, Ege University Faculty of Agriculture Publications, No: 528, Izmir, 1999.
- Greenhouse Vegetable Production, Ayten Sevgican, Agricultural Research Support and Development Foundation, Publication No: 19, Izmir, 1989.
- The Use and Importance of Growing and Inhibiting Substances in Horticulture, Muharrem Güteryüz, Atatürk University Publications No: 599, Faculty of Agriculture Publications No: 279, Translation Number No: 20, Atatürk University Press House, Erzurum. 1982, (Translation from Dr. Heinz Jansen).
- Plant Biotechnology: Tissue Culture and Applications, Mehmet Babaoğlu, Ekrem Gürel and Sebahattin Özcan, Selçuk University Press, Konya, 2001.
- Horticulture Physiology, Atilla Eriş, Uludağ University Faculty of Agriculture Lecture Notes No: 11, 1990
- Horticulture Technique, Nurettin KAÇKA, Muhsin YILMAZ, Çukurova University Faculty of Agriculture Publications,
- Subtropical Climate Fruits (Citrus Fruits), Kadir Mendilcioğlu, Ege University Faculty of Agriculture Publications No: 9/6, İzmir, 2000.

- Subtropical Climate Fruits (Tea & Banana), Kadir Mendilciođlu, Ege University Faculty of Agriculture Publications No: 55, İzmir, 1997.
- Nar, Caner Onur, Derim, Vol.5, Issue.4, 1988.
- Persimmon, Serap Onur, Derim, Vol.7, No.1, 1990.
- Kiwi Cultivation, Temel Yalçın, Atatürk Garden Cultures Central Research Institute, Yalova,
- Loquat Cultivation, Şenes Demir, Citrus Research Institute Directorate, General Publication No: 12, Antalya, 1987.
- Subtropical Climate Fruits (Olive), Kadir Mendilciođlu, Ege University Faculty of Agriculture, Offset Press House, Izmir, 1999.
- Citrus Cultivation, Himmet Kaygısız, Hasad Publications, 2003.
- Olive Cultivation, Hasad Publications, 2003.
- Kiwi Cultivation, Hasad Publications, 2003.
- Trabzon Persimmon Cultivation, Hasad Publications, 2003.
- Special Fruit Growing Lecture Notes, Muharrem Güteryüz, Atatürk University Faculty of Agriculture, Erzurum, 1979.
- Special Fruit Growing (Fruit Species that shed their leaves in winter), Sabahattin Özbek, Çukurova University Faculty of Agriculture Publications No: 128, Adana, 1978.
- Temperate Climate Fruits, Atilla Eriş and Erdoğan Barut, Uludağ University Faculty of Agriculture Lecture Notes No: 57, Bursa, 1993.
- Temperate Climate Fruit Species (Stone Fruits Volume: 1), Rahmi Özçağırın, Ali Ünal, Elmas Özeker and Murat İsfendiyarođlu, Ege University Faculty of Agriculture Publications No: 553, İzmir, 2003.
- Lucas'Anleitung zum Obstbau, Fritz Winter, Helmut Janssen, Winfried Kennel, Hermann Link and Robert Silbereisen, Verlag Eugen Ulmer Stuttgart, Germany, 1974.
- Conservation and Market Preparation of Horticultural Products (I. Fruit Conservation and Market Preparation), Muharrem Güteryüz, Atatürk University Faculty of Agriculture, Department of Horticulture Lecture Notes, Erzurum, 1988.
- Conservation and Marketing of Garden Products, İsmail Karaçalı, Ege University Faculty of Agriculture Publications No: 494, İzmir, 1990.
- Seed Science and Technology, Benian Eser, Hikmet Saygılı, Adem Gökçöl, Emre İlker, Ege University Seed Technology Application and Research Center, Volume: I Bornova-İzmir, 2005

- Seed Science and Technology, Benian Eser, Hikmet Saygılı, Adem Gökçöl, Emre İlker, Ege University Seed Technology Application and Research Center, Volume: II Bornova-İzmir, 2005
- Principle of Seed Science and Technology (Second Edition), Copeland L.O. and M.B. McDonald, Macmillan Publishing Company, New York, USA, 1985.
- Fruit and Vegetable Breeding, Muharrem Güteryüz, Atatürk University Faculty of Agriculture, Department of Horticulture Lecture Notes, Erzurum 1985.
- Gartenbauliche Pflanzenzüchtung, Hermann Kuckuck, Verlag Paul Parey, Berlin und Hamburg, Germany, 1979.
- Advances in Fruit Breeding, James N. Moore and Jules Janik, Purdue University Press, West Lafayette, Indiana, 1975.
- Methods in Fruit Breeding, James N. Moore and Jules Janik, Purdue University Press, West Lafayette, Indiana, 1983.

### **Ornamental Plants Cultivation (1-2) 2**

Content: Definition and classification of ornamental plants, cut flowers, potted plants, ornamental shrubs, ornamental trees, ground covers, seasonal garden flowers, description and propagation methods of important ornamental plants, propagation plants and propagation media.

Textbook:

- Genç, M. 2005. Ornamental Plants Cultivation, p:369

### **Fruit Growing Technique (2-2) 3**

Content: Propagation methods of fruit trees, generative and vegetative propagation, propagation by seed, cuttings, root shoots, dipping, grafting, tissue culture, cultivation of seedlings in temperate climate fruit species and establishment of gardens, selection of garden location, Considerations in selection, planting forms, planting seedlings, pruning of fruit trees, pruning technique, training forms, goblet, pyramid, pinnacle branched, different pinnacle, thin spindle-shaped pruning, crop pruning, pruning of different fruit species.

Textbook:

- Horticulture Technique, Nurettin KAÇKA, Muhsin YILMAZ, Çukurova University Faculty of Agriculture Publications.

### **Horticultural Ecology and Physiology (1-2) 2**

Content: The effect of soil, water, light, temperature and weather factors on horticultural crops. Definition and purpose of physiology, growth and development, factors affecting growth and development, some important physiological events in growth and development, plant-water relations, the role of plant nutrients in the physiology and cultivation of horticultural crops.

Textbook:

- General Horticulture, Y.S. Ağaoğlu, H. Çelik, M. Çelik, Y. Fidan, Y. Gülşen, A. Günay, N. Halloran, A.I. Köksal, R. Yanmaz, Ankara University Faculty of Agriculture Education, Research and Development Foundation Publications No: 4, 1995.
- Vegetable Cultivation, Volume: I., Atilla Günay, İzmir, 2005.
- General Viticulture, Hasan ÇELİK, Sabit AĞAOĞLU, Yılmaz FİDAN, Birhan MARASALI, Gökhan SÖYLEMEZOĞLU, Fersa Matbaacılık San. Tic. Ltd. Şti., ANKARA, 1998.
- General Fruit Growing, Sabahattin Özbek, Çukurova University Faculty of Agriculture Textbook, 1975.
- Horticulture Physiology, Atilla Eriş, Uludağ University Faculty of Agriculture Lecture Notes No: 11, 1990

### **Warm climate vegetables (1-2) 2**

Content: Morphological characteristics of vegetable species such as Pepper, Okra, Tomato, Bean, Cucumber, Melon, Watermelon, Squash, Eggplant, Sweet corn and Sweet potato are given information about climate and cultivation technique.

Textbook:

- Cultivated Vegetables (Vegetable Cultivation), Hüseyin Vural, Dursun Eşiyok, İbrahim Duman, Ege University, Faculty of Agriculture, Department of Horticulture, Bornova-İzmir, 2000.

Supplementary Textbook:

- Special Vegetable Cultivation, Volume: III., Atilla Günay, Ankara University, Faculty of Agriculture, Department of Horticulture, Ankara, 1984.
- Special Vegetable Cultivation, Volume: IV., Atilla Günay, Ankara University, Faculty of Agriculture, Department of Horticulture, Ankara, 1992.
- Special Vegetable Cultivation, SERLER, Atilla Günay, Volume: II., Ankara University, Faculty of Agriculture, Department of Horticulture, Ankara, 1992.
- Vegetable Cultivation, Volume: I., Atilla Günay, İzmir, 2005.
- Vegetable Cultivation, Volume: II. Atilla Günay,, İzmir, 2005.

### **Grape Fruits (2-2) 3**

Content: Classification of berry fruit species, economic values, nutritional contents and differences with other fruit species, strawberry, raspberry, blackberry, blackberry, blackcurrant, rosehip species and varieties of these species, biological and ecological characteristics of berry fruit species, distribution in the world and Turkey, genetic resources, garden establishment and cultural practices, usage areas.

Textbook:

- Grape Fruits, Sabit Ağaoğlu, Ankara University Faculty of Agriculture Publications No: 984, Ankara, 1986.

Supplementary Textbook:

- Strawberry cultivation, Himmet Kaygısız, Hasad Publications, 2003.
- Blueberry (Likapa) Cultivation, Hasad Publications, 2003.

### **Hard Shell Fruit Species (2-2) 3**

Content: The origin of hard-shelled fruit species (Hazelnut, Pistachio, Walnut, Almond, Chestnut, Pecan, Pecan, Carob and Pistachio Glass) and varieties, cultural history, areas of distribution in the world, systematic information about the ecological requirements of these species and varieties, vegetative and generative development stages, floral biology, fruit set, fruit set, productivity events, the effects of biological characteristics after harvest, annual maintenance works (tillage, irrigation, fertilization and control, etc.), harvest technique, standards, packaging, preservation, nutrition and trade.b) Harvest Technique, Standards, Packaging, preservation, nutrition and trade.

Textbook:

- Temperate Climate Fruit Species, Hard Shell Fruits, Volume III, Rahmi Özçağırın; Ali Ünal, Elmas Özeke and Murat İsfendiyaroğlu, Ege University Publications, No: 566, Bornova, İzmir, 2005.

Supplementary Textbook:

- Hazelnut and its cultivation, Mehmet Özdemir, Beşikçi Yayın Dağıtım, Trabzon, 2005.
- Turkish Hazlnut Cultivars, İlhami Köksal, Hazlnut Promotion Group, Girsun, 2002.
- Temperate Zone Pomology, Phsiology and Culture, Third Edition, Melvin Neil Westwood, Timber Press, Portland, Oregon, 1993.
- Almond, Production Manula, Waren C. Micke, University of California, Division of Agriculture and Natural Resources, California, 1996.
- Tree Nuts: Production, Processing, Products, Second Edition, Jasper Guy Woodroof, University of Georgia, AVI Publishing Company, Westport, USA, 1979.
- Handboof of Nuts, James A. Duke, CRC Press, Florida, 1989.
- Dried and Hard-Shelled Fruits, Yücel Akova, Export Development Study Center, Ankara, 2000.

### **Soft and Stone Fruit Species (2-2) 3**

Content: Origin of Soft and Stone Fruit Species and Varieties, Areas of Distribution in the World, Giving Information about Systematics, Vegetative and Generative Development Stages, Morphological Structures, Flower Biology, Fruit Set, Productivity of these Species and Varieties



The effects of biological properties after harvesting, Annual Maintenance Works in Fruit Gardens (Tillage, Irrigation, Fertilization, Disease and Pest Control) Harvest, Production Status of Fruits and Their Place and Importance in Domestic and Foreign Trade.

Textbook:

- Special Fruit Growing Lecture Notes, Muharrem Güteryüz, Atatürk University Faculty of Agriculture, Erzurum, 1979.

Supplementary Textbook:

- Special Fruit Growing (Fruit Species that shed their leaves in winter), Sabahattin Özbek, Çukurova University Faculty of Agriculture Publications No: 128, Adana, 1978.
- Temperate Climate Fruits, Atilla Eriş and Erdoğan Barut, Uludağ University Faculty of Agriculture Lecture Notes No: 57, Bursa, 1993.
- Temperate Climate Fruit Species (Stone Fruits Volume: 1), Rahmi Özçağırın, Ali Ünal, Elmas Özeker and Murat İsfendiyaroğlu, Ege University Faculty of Agriculture Publications No: 553, İzmir, 2003.
- Lucas'Anleitung zum Obstbau, Fritz Winter, Helmut Janssen, Winfried Kennel, Hermann Link and Robert Silbereisen, Verlag Eugen Ulmer Stuttgart, Germany, 1974.

### **Conservation and Marketing of Horticultural Products (1-2) 2**

Content: Horticultural Products and General Characteristics, Formation and Characteristics of Fruit, Storage of Fruits (Storage Capability and Effects on Quality, Duration of Storage, Preservation and Enhancement of Flavor, Fruit Fading, Fruit Ripening in Storage), Storage Diseases (Physiologically Specified Diseases, Parasitically Specified Diseases), Principles of Storage (Maturity, Factors Affecting Storage and Durability, Storage Factors and their effects), Storage Types, Works to be done in Technical Maintenance in Storage, Technical equipment of the warehouse, Storage Facilities of Various Fruit Species in Normal Cold Air and Controlled Atmosphere Warehouses (Soft, Stone Fruit and Grape Fruit Species, Citrus, Tropical and Subtropical Fruit Species, Crustacean Fruit Species), Preparation of Fruit Species to Market and Marketing (Harvest Works, Sorting Works, Packaging Works, Transportation Works).

Textbook:

- Conservation and Market Preparation of Horticultural Products (I. Fruit Conservation and Market Preparation), Muharrem Güteryüz, Atatürk University Faculty of Agriculture, Department of Horticulture Lecture Notes, Erzurum, 1988.

Supplementary Textbook:

- Conservation and Marketing of Garden Products, İsmail Karaçalı, Ege University Faculty of Agriculture Publications No: 494, İzmir, 1990.

### **Horticulture Breeding (2-2) 3**

Content: Economic Value Fruit Species and Vegetable Breeding Objectives and Methods, Fruit Species Formation, Subjects of Fruit Breeding, General Breeding Objectives in Varieties,

General Breeding Objectives in Rootstocks, Variations of Origin Material and Breeding Trials, Variety Breeding in Fruits (Breeding on Fruit Quality, Strength Breeding, Breeding for Special Climate Areas, Stimulation of Mutations), Breeding of rootstocks (Breeding of vegetatively propagated rootstocks, Breeding of seed propagated rootstocks), Conservation breeding (Conservation breeding in fruit trees, Conservation breeding in strawberries), International cooperation, Development of vegetable species, General Breeding Objectives of Vegetables, Breeding Methods in the Development of New Varieties, Self Fertilized Vegetable Species (Beans, Peas, Lettuce, Tomato), Foreign Fertilized Vegetable Species (Onion Carrot, Root Celery, Cabbage, Small and Large Radishes, Cucumbers, Spinach), Control of Breeding Results and Variety Protection, Conservation Breeding and Seed Production, Viticultural Breeding Methods (Selection Breeding, Combination Breeding, Polyploidy Breeding, Mutation Breeding).

Textbook:

- Fruit and Vegetable Breeding, Muharrem Güleriyüz, Atatürk University Faculty of Agriculture, Department of Horticulture Lecture Notes, Erzurum 1985.

Supplementary Textbook:

- Gartenbauliche Pflanzenzüchtung, Hermann Kuckuck, Verlag Paul Parey, Berlin und Hamburg, Germany, 1979.
- Advances in Fruit Breeding, James N. Moore and Jules Janik, Purdue University Press, West Lafayette, Indiana, 1975.
- Methods in Fruit Breeding, James N. Moore and Jules Janik, Purdue University Press, West Lafayette, Indiana, 1983.

## **Special Viticulture (1-2) 2**

Content: Vine Physiology, Vine Biology, Vine Breeding, Ampelography.

Course Book:

- Scientific and Applied Viticulture (Vine Biology), Sabit AĞAOĞLU, Kavaklıdere Education Publications, ANKARA, 1999.
- Scientific and Applied Viticulture (Vine Physiology I), Sabit AĞAOĞLU, Kavaklıdere Education Publications, ANKARA, 2002.

Supplementary Textbook:

- Viticulture, Salih ÇELİK, Anadolu Matbaa Ambalaj San. And Tic. Ltd. Şti., TEKİRDAĞ, 1998.
- Special Viticulture, Yılmaz FİDAN, Ankara University Faculty of Agriculture Publications, ANKARA, 1985.
- Special Viticulture, Atilla ERİŞ, Uludağ University Faculty of Agriculture, BURSA, 1992.
- Biology of the grapevine, Michael G. Mullins, Alain Bouquet, Larry E. Williams, Cambridge University Press, New York, 1992.

### **Greenhouse Vegetable Cultivation (2-2) 3**

Content: Low plastic tunnels, General Greenhouse cultivation (Definition of greenhouse and greenhouse cultivation, Greenhouse cultivation in Turkey and the world, Classification of greenhouses, Factors affecting the selection of greenhouse location, Issues to be considered during greenhouse establishment, Greenhouse air conditioning arrangement, Soil preparation in greenhouses and irrigation in greenhouses), Special Greenhouse cultivation (Tomato, cucumber, pepper and eggplant cultivation).

Textbook:

- Greenhouse Vegetable Production, Ayten Sevgican, Ege University Faculty of Agriculture Publications, No: 528, Izmir, 1999.

Supplementary Textbook:

- Greenhouse Vegetable Production, Ayten Sevgican, Agricultural Research Support and Development Foundation, Publication No: 19, Izmir, 1989.
- Special Vegetable Cultivation, SERLER, Volume: II., Atilla Günay, Ankara University, Agriculture Faculty, Department of Horticulture, Ankara, 1992.

### **Graduation Study (2-0) 2**

Content: Graduation thesis on Fruit, Vegetable and Vineyard Breeding and Breeding will be prepared.

## **VOCATIONAL ELECTIVES**

### **Soilless Agriculture Techniques (2-0) 2**

Content: Definition of soilless agriculture, history, types of soilless agriculture techniques, necessity, the situation in the world and in Turkey, the future and economics of soilless agriculture in the process of global climate change

Textbook:

- Landless Agriculture Techniques, Rafet Aslantaş, Lecture

Notes, 2007. Auxiliary Textbook:

- Greenhouse Vegetable Production, Ayten Sevgican, Ege University Faculty of Agriculture Publications, No: 526, Bornova, Izmir, 1999.

### **Hormone Use in Horticulture (2-0) 2**

Content: Definition of Growth and Inhibitory Chemical Substances, Transport and Biosynthesis, Mode of Action, Application Suggestions, Seed Germination and Resting, Vegetative Growth, Bud Resting and Awakening, Vernalization and Shoot Formation, Flower Formation, Root Growth and Steel Rooting, Tissue and Meristem Cultures, Sex Determination, Fruit Formation and Development Possibilities of Use

Textbook:

- The Use and Importance of Growing and Inhibiting Substances in Horticulture, Muharrem Güteryüz, Atatürk University Publications No: 599, Faculty of Agriculture Publications No: 279, Translation Number No: 20, Atatürk University Press House, Erzurum. 1982, (Translation from Dr. Heinz Jansen).

Supplementary Textbook:

- Plant Biotechnology: Tissue Culture and Applications, Mehmet Babaoğlu, Ekrem Gürel and Sebahattin Özcan, Selçuk University Press, Konya, 2001.

### **Project Preparation Technique in Horticulture (2-0) 2**

Content: Concept and Classification of Plan-Project, Principles of Project Preparation, Principle Differences according to Horticulture Production and Research Topics, Project Execution and Process Management, Capacity Analysis, Financial and Economic Aspects of the Project

Sources

- Project Process Management and Logical Framework Matrix Preparation Principles, A.Vural ÖRSDEMİR, Serdar KABUKÇUOĞLU, Istanbul Bilgi University Publications, Istanbul, 2005.

Supplementary Textbook:

- General Viticulture, Hasan ÇELİK, Sabit AĞAOĞLU, Yılmaz FİDAN, Birhan MARASALI, Gökhan SÖYLEMEZOĞLU, Fersa Matbaacılık San. Tic. Ltd. Şti., ANKARA, 1998.
- General Fruit Growing, Sabahattin ÖZBEK, Çukurova University Faculty of Agriculture Publications,
- General Vegetable Cultivation, Atilla GÜNAY, Ankara University, Faculty of Agriculture, Department of Horticulture, ANKARA, 1992.
- Fruit Growing Technique, Horticultural Crops Growing Technique, Nurettin KAÇKA, Muhsin YILMAZ, Çukurova University Faculty of Agriculture Publications,
- Greenhouse Vegetable Production, Ayten SEVGİCAN, Ege University Press House, Bornova-İZMİR, 1999.

### **Sapling and Seedling Growing (2-0) 2**

Content: Basic principles of seedling and sapling growing, terminology used, production techniques, seedling and sapling production places, planning of enterprises, national and international standards

Textbook:

- Tomato, Pepper and Eggplant Cultivation, Vedat Şeniz, Agricultural Research Support

and Development Foundation Publications, No: 26, Yalova, 1992

- Fruit Growing Technique, Muharrem Gülerüz, Lecture

Notes Supplementary Textbook:

- Cultivated Vegetables (Vegetable Cultivation), Hüseyin Vural, Dursun Eşiyok, İbrahim Duman, Ege University, Faculty of Agriculture, Department of Horticulture, Bornova-İzmir, 2000.
- Vegetable Cultivation, Volume: I., Atilla Günay, İzmir, 2005.
- Vegetable Cultivation, Volume: II. Atilla Günay,, İzmir, 2005.
- Sapling Production and Distribution Instructions, Ministry of Agriculture and Rural Affairs, General Directorate of Agricultural Production and Development, Mezuat Publications Series, Ankara, 1998. GARDEN

### **Horticultural Biotechnology (2-0) 2**

Content: Definition of biotechnology, introduction to plant tissue cultures (plant tissue culture laboratory, media, aseptic techniques) organogenesis, somatic embryogenesis, somaclonal variation, haploidy, protoplast fusion and somatic hybridization, secondary metabolites, germplasm conservation, molecular markers and gene transfer.

Textbook:

- Çiltaş, A., Aksakal, E., Orhan, E., Dikbaş, N., Sirkecioğlu, A.N., Alak, G., Bayır, M., 2012. Agricultural Biotechnology Lecture Notes.
- Plant Development and Biotechnology Edited by Robert N Trigiano and Dennis J Gray CRC Press 2004 ISBN 0849316146

Plant Developmental Biology - Biotechnological Perspectives Edited by Pua, Eng Chong; Davey, Michael R. Springer December 2009 ISBN: 978-3-642-02300-2 3

### **Indoor Ornamental Plants (2-0) 2**

Content: General care rules of indoor ornamental plants, arrangement, disease and pest control methods, production methods, learning of important indoor ornamental plants (Abutilon, Acalypha, Achimenes, Adiantum, Aechmea, Aeonium, Aeschynanthus etc.).

Textbook:

- Güçlü,K.,1993.Indoor Plants

Supplementary Textbook:

- Çelem, H., Arslan M., 1995. Indoor Plants

### **Outdoor Ornamental Plants (2-0) 2**

Content: Definition of outdoor ornamental plants and their importance in urban and rural landscapes; classification of plants according to different physical criteria (norm, form, texture, branching); physical and biological differences between leafy and coniferous plants; taxonomic, morphological, biological characteristics, ecological and cultural requirements, propagation methods, important cultivars and their characteristics, introduction of species in the field and sample collection-drying studies to reinforce recognition. Examination of some leafy trees and shrubs on species basis.

Textbook:

- Hatipođlu, A., Glgn, B., Annual and Perennial Seasonal Flowers.

Supplementary Textbook:

- Ycel, E.,2002. Flowers and Groundcovers
- Mamikođlu, N. G., 2007. Turkey's Trees and Shrubs. NTV Publications, Istanbul. 727s. ISBN: 978-975-6690-80-2.
- zzambak, E., M. İsfendiyarođlu, E. Zeybekođlu and . Kahraman, 2007. Good Agricultural Practices in Ornamental Plants Cultivation. Tibyan Publications Ltd., Yeniřehir, İzmir. 200s. ISBN: 978-9944-172-01-1.

### **Fruit Genetic Resources (2-0) 2**

Content: Importance of fruit genetic resources, Fruit genetic resources and distribution areas, Survey and field studies, Techniques of collecting seeds and other plant materials from nature, Techniques of creating herbarium, Production techniques of plant materials collected from nature, In situ conservation of fruit genetic resources, Conservation of fruit genetic resources under controlled conditions, Fruit genetic resources and gene banks, Methods of utilization of fruit genetic resources.

Textbook:

- Course prepared by the instructor of the department by utilizing different sources  
Note

### **Vegetable Genetic Resources (2-0) 2**

Content: Importance of vegetable genetic resources, Vegetable genetic resources and their distribution areas, Survey and field studies, Techniques of collecting seeds and other plant materials from nature, Techniques of creating herbarium, Production techniques of plant materials collected from nature, In situ conservation of vegetable genetic resources, Conservation of vegetable genetic resources under controlled conditions, Vegetable genetic resources and gene banks, Methods of utilization of vegetable genetic resources.

Textbook:

- Course prepared by the instructor of the department by utilizing different sources  
Note

Supplementary Textbook:

- Fordham, R. and A.G. Biggs. 1985. Principles of Vegetable Crop Production. Collins Professional and Technical Books. Wilham Collins Sons and co. Ltd. London. Vural, H., D. Eřiyok and İ. Duman, 2000.

### **Plants Evaluated as Vegetables (2-0) 2**

Content: Wild plant species that are consumed as vegetables, their chemical contents and nutritional values, consumption patterns and production methods.

Textbook:

Lecture notes of the lecturer

## **Cut Flower Growing (2-0) 2**

Content: Botanical structure of cut flowers, sensitivities, developmental characteristics, Growing of Shepherd's Purse, Growing of Lisianthus, Growing of Helianthus, Growing of Carnation, Growing of Chrysanthemum, Growing of Sterliçya, Anthurium Cultivation, Husnüyusuf Cultivation, Alstromeria Cultivation, Tulip Cultivation Tulip Cultivation, Hyacinth Cultivation, Flesia Cultivation, Narcissus Cultivation, Gypsophylla Cultivation, Asparagus Cultivation.

Textbook:

- Lecture notes of the lecturer, lecture notes prepared by using different sources and presentations, CDs transferred to electronic media enriched with pictures

Supplementary Textbook:

- Cut Floriculture (Ministry of Agriculture and Rural Affairs)
- Greenhouse Production (Ronald J. Biondo) Flower Production Technique (Prof.Dr.Fuat Tanrıverdi)
- Korkut, A. B. 1998. Floriculture . Hasad Publishing, 253 p.

## **Subtropical Climate Fruit Species (3-0) 3**

Content: Classification of citrus fruits, distribution in the world and in Turkey, production and export values, biological and ecological requirements, usage areas and importance in terms of human health, botanical characteristics, propagation, reasons for the use of rootstocks in citrus fruits and rootstocks used, garden establishment and maintenance works, tea cultivation, banana cultivation, pomegranate cultivation, persimmon cultivation, kiwi cultivation, loquat cultivation, avocado cultivation, olive cultivation.

Textbook:

- Subtropical Climate Fruits (Citrus Fruits), Kadir Mendilcioğlu, Ege University Faculty of Agriculture Publications No: 9/6, İzmir, 2000.
- Subtropical Climate Fruits (Tea & Banana), Kadir Mendilcioğlu, Ege University Faculty of Agriculture Publications No: 55, İzmir, 1997.
- Nar, Caner Onur, Derim, Vol.5, Issue.4, 1988.
- Persimmon, Serap Onur, Derim, Vol.7, No.1, 1990.
- Kiwi Cultivation, Temel Yalçın, Atatürk Garden Cultures Central Research Institute, Yalova,
- Yenidünya Cultivation, Şenes Demir, Citrus Research Institute Directorate, General Publication No: 12, Antalya, 1987.



- Subtropical Climate Fruits (Olive), Kadir Mendilciođlu, Ege University Faculty of Agriculture, Offset Press House, Izmir, 1999.

Supplementary Textbook:

- Citrus Cultivation, Himmet Kaygısız, Hasad Publications, 2003.
- Olive Cultivation, Hasad Publications, 2003.
- Kiwi Cultivation, Hasad Publications, 2003.
- Trabzon Persimmon Cultivation, Hasad Publications, 2003.

### **Vegetable Seed Production (3-0) 3**

Content: Technical terms used in seed production, Seed production in the world and development of seed production in our country, Seed morphology and ecology, Isolation methods used in seed production and reasons for their use, Seed production and cultural processes applied, Seed production and harvest, Laboratory methods used to determine seed viability and quality

Textbook:

- Seed Science and Technology, Benian Eser, Hikmet Saygılı, Adem Gökçöl, Emre İlker, Ege University Seed Technology Application and Research Center, Volume: I Bornova- İzmir, 2005
- Seed Science and Technology, Benian Eser, Hikmet Saygılı, Adem Gökçöl, Emre İlker, Ege University Seed Technology Application and Research Center, Volume: II Bornova- İzmir, 2005

Supplementary Textbook:

- Principle of Seed Science and Technology (Second Edition), Copeland L.O. and M.B. McDonald, Macmillan Publishing Company, New York, USA, 1985.

### **Organic Horticulture (3-0) 3**

Content: Organic agriculture and principles, Organic agricultural products yesterday and today, Rotation in organic agriculture, Increasing soil fertility naturally, Pollution caused by agricultural irrigation practices and precautions to be taken, Organic agriculture in greenhouse, Principles of organic fruit growing, Economic analysis of organic agriculture, Control and certification in organic agriculture, Organic agriculture organization associations.

Textbook:

- Ecological (Organic and Biological) Agriculture, Uygun Aksoy, Ahmet Altındışli, Ecological Agriculture Organization Association (ETO), Bornova-İzmir, 1998

Supplementary Textbook:

- Ecological Agriculture, Anonymous, Ministry of Agriculture and Rural Affairs İzmir Provincial Directorate, Ege University Faculty of Agriculture, Ecological Agriculture Organization Association (ETO), İzmir, 1999.

### **Wild and Exotic Fruits (3-0) 3**

Content: Fruit species such as hawthorn, medlar, rowan, hawthorn, blackthorn and exotic fruits (mulberry, cranberry, etc.), which are called wild fruits, which are edible or evaluable, and fruit species called exotic fruits (mulberry, cranberry, etc.) will be examined in terms of cultivation techniques, climate requirements, and intended use of fruits.

Textbook:

- Wild edible fruit , Marjorie Furlong (Lecture Note)

### **Covered Fruit Growing (3-0) 3**

Content: Status of fruit growing under cover, fruit species suitable for fruit growing under cover, training system and pruning methods used in fruit growing under cover, advantages and disadvantages of fruit growing under cover.

Textbook:

- Imrak, B., Kuden, A., Sarier, A., Kuden, A. B. 2009. Covered Apple Cultivation under Subtropical Conditions. Journal of Agricultural Sciences Research 2 (1):187-193
- Şahin, G., Kendirli, B. 2012. Greenhouse fruit growing in Turkey. Akdeniz Univ. Agriculture Fak. Derg. (2012) 25(1): 9-15

Supplementary Textbook:

- Ergenoğlu, F., Tangolar, S., Orhan, E., Gök, S. and Büyüktaş, N., 1999. Effects of Plastic Covering of Some Table Grape Varieties at Different Times on Yield and Quality. Tr. J. of Agriculture and Forestry, 23(4): 899-908 s.

### **Edible Mushroom Cultivation (3-0) 3**

Content: General information about mushrooms, Mushroom growing places and systems, Mushroom production technique, Mushroom diseases and pests, Mushroom evaluation forms, Problems encountered in mushroom production and solutions, Preparation of production plan and use of labor.

Textbook:

- Culture Mushroom Cultivation, Iclal Erken, Koca Oluk Yaynevi Istanbul,

2000 Supplementary Textbook:

- Vegetable Cultivation, Volume: II., Atilla Günay, İzmir, 2005.
- Mushroom Cultivation, Atilla Günay, İlke Kitapevi Publications, No: 22, Ankara, 1995

## **ELECTIVE COURSES**

### **Wheatgrass Forage Crops (2+2) 3**

General structural characteristics of forage crops, general characteristics of important forage crops genera, structural characteristics of some forage crops species will be covered.

### **Meadow Pasture Management (3+2) 4**

The aim of this course is to teach meadow and pasture terms and meadow pasture management concepts correctly and to make students aware that there are important differences between meadow and pasture management and to explain the functions, sustainable use and importance of meadows and pastures from natural vegetation in terms of animal production.

### **Oil Crops (1-2) 2**

Introducing the botanical and herbal characteristics of some of the plants mentioned below as oil crops. To give the students the cultivation techniques applied for the production of these plants.

### **Legume Forage Crops (2+2) 3**

Importance, use, climate, soil and nutrient requirements, crop rotation, seedbed preparation, sowing, fertilization, irrigation, weed, disease and pest control, seed production, harvesting and storage of leguminous forage crops such as alfalfa, sainfoin, clover, clover, vetches and vetches.

### **Medicinal And Aromatic Plants (3+2) 4**

To know and classify the main medicinal plants, to know the origin, distribution and botanical characteristics of the main medicinal plants, to learn the cultivation techniques and quality criteria of these plants, to realize the importance of harvesting and drying processes and storage in these plants, to examine medicinal plants according to their active ingredients, to examine secondary metabolites and their functions, to understand the importance of secondary metabolites, to understand the properties of active ingredients and their role in their usage areas, to be aware of the economic importance of this group of plants.

### **Insect Morphology and Physiology (2+2) 3**

Defining and determining the place of Insecta class in Arthropoda branch, structure, shape and extensions of the body wall and molting, insect embryology, structure and extensions of the head, thorax and abdomen, structure and functions of sensory organs, respiratory, digestive, excretory, nervous systems, structure and function of blood, structure and function of hormones will be explained.

### **Mycology (1+2) 2**

Introduction to fungi, basic concepts in mycology, cell structure in fungi, ecology of fungi, vegetative structure of fungi, fungal propagation.

### **General Herbology (1+2) 2**

Development of herbology, benefits and damages of weeds, biology and ecology of weeds, advantages of weeds over cultivated plants, general methods used in the control of weeds, classification of herbicides, basic information about the use of herbicides, introduction of weeds that cause problems in agricultural areas.

### **Plant Acarology (1+2) 2**

Description, biology, damage and control of mites of economic importance in fruit, vineyard, grain, vegetable, forage and industrial crops.

### **Plant Bacterial Diseases (2+2) 3**

Plant pathogenic bacteria that cause economic losses in the world, the role of environmental factors in disease development, methods used in the isolation and diagnosis of plant pathogenic bacteria, disease management, disease mechanisms of pathogens and plant resistance mechanisms.

### **Insect Systematics (2+2) 3**

Introduction of insects at the order and family level, biological characteristics, their role in ecosystems, beneficial and harmful insect groups.

### **Agricultural Control Methods And Pesticides Plant Pests Control Methods And Spraying (2+2) 2**

Cultural, mechanical, physical, biological, biotechnical, chemical and integrated pest control methods are given.

### **Rural Development (2+0) 2**

What is rural development? Basic concepts in rural development. Basic characteristics of rural areas. Relationships between rural development and other branches of science. Relations between rural development and agricultural development, rural industry, agricultural policy and development economics, Determination of study areas and study subjects in rural development, Basic features of rural development policies and practices, Potential identification and inventory studies in rural development, Problem analysis techniques in rural development studies, priority setting, risk analysis and solution approaches, Community dynamics in rural development, women's dimension and gender balanced development, Development of human resources in rural development, Participation in rural development, participatory approaches and implementation techniques, Changes in the field of rural development in the world and in the European Union, Discussion of rural development policies, practices and results in Turkey, Project development for rural development and basic concepts and elements to be considered in project development.

### **Agricultural Management (2+2) 3**

Agricultural business system, manager, decision-making stages and basic functions of management, projection methods, budget definition, purpose and types, legal status, business organization, cost controls and break-even analysis, basic financial statements for the enterprise (financial ratios, balance sheet, profit and loss account, etc.), investment decisions and applications, supervision and motivation of business personnel, determination of the personnel needs of the enterprise, performance evaluations, factors to be considered for successful and effective management of the enterprise.

### **Agricultural Valuation and Expertise (2+0) 2**

Definition and subject of appraisal, appraisal criteria, appraisal methods (synthetic and analytical methods), economic goods subject to appraisal, determination of the value of land and agricultural enterprises operated by the owner, tenant and sharecropper according to synthetic and analytical methods, calculation of the value of orchards and vineyards, appraisal legislation, expert witness, expert witness legislation, selection of expert witness, expert witness in expropriation and damage assessment, expert witness in agricultural insurance, preparation of expert report.

### **Analysis and Planning of Agricultural Enterprises (2+2) 3**

Definition and basic principles of business management, internal and external factors affecting management, production resources (labor, capital, land and entrepreneurship), measures of success in enterprises, definition and subject of business planning, importance and benefits of planned work, data collection for planning, planning methods (improved budget, program planning and linear programming methods), calculation of the most profitable product compositions and the lowest cost compound feeds.

### **Agricultural Accounting (2+2) 3**

Definition and subject of accounting, agricultural business records (physical and financial records), keeping accounting records, simple accounting and double-sided recording methods, analysis of accounting records, application of simple accounting and uniform accounting system in agricultural and agriculture-based industrial enterprises.

### **Production Economics (2+2) 3**

Basic concepts of production economics, production systems (production systems in economic terms, classification of production systems, service producing systems, production strategies, etc.), demand forecasting, technology selection (management of technology, technology transfer, advanced technology, etc.), factors affecting site selection and valuation methods in site selection, logistics management, capacity planning, production planning (preparation of production plan, production planning strategies, etc.), productivity.

### **Professional Foreign Language I (2+0) 2**

Terms used in the field of Horticulture and following the texts on the subject.

### **Professional Foreign Language II (2+0) 2**

Terms used in the field of Horticulture and following the texts on the subject.

## **SOCIAL-CULTURAL COURSES**

### **For 7th and 8th semesters**

### **Physical Education (3+0) 3**

To introduce the concepts, publications and professional fields of physical education and sports, the relationship between human and physical education and sports, the relationship between physical, physiological and psycho-social study areas with physical education science, the development of physical education in the world and in Turkey and the pioneers, the status of physical education science in different countries, the relationship between performance and physical education science will be examined.

### **Music (3+0) 3**

Gaining knowledge about basic music concepts related to music, gaining general knowledge about music science (musicology) and sub-branches of musicology such as music theory, music history, music psychology, music psychology, music therapy, etc. Examine music scientifically by doing interdisciplinary sample exercises.

**Folk Dances (3+0) 3**

To teach the teaching methods and forms of folk dances of various regions and to inform about the folklore of the regions.

**Theater (3+0) 3**

What is theater, the views on its origin, the importance of theater in Ancient Greece and Rome and examines it.

**Sign Language (3+0) 3**

Definition of Turkish sign language (TİD), Hand and finger shapes, Position of hands according to the body, Function of mimics, Single and double hand use, Relationship of signs with Turkish, Understanding the other party.

**Occupational Health and Safety (3+0) 3**

First Aid Training 1.1. General first aid training rules 1.2. Rules of training in the evaluation of the scene 1.3. Basic life support training rules 1.4. First aid training rules in bleeding 1.5. First aid training rules in injuries 1.6. First aid training rules in burns 1.7. First aid training rules in fractures, dislocations and sprains 1.8. First aid training rules in poisoning 2.

**Painting (3+0) 3**

Color and Harmony, Pattern, Ways of Seeing, New Art History, Composition and Fiction, The Story of Art, The Story of Modern Art, Art and Illusion, The Story of Art, Basic Concepts of Art.