**Occupational standard**

**Gardener, level 4**

**The occupational standard is a document**, that describes the job and competence requirements, i.e. a set of skills, knowledge and attitudes required for successful job performance in a particular occupation.

**Application areas of the occupational standard**

1. Drafting of curricula and training programmes meeting the requirements of labour market.
2. Evaluation of competence of the people, incl self-evaluation and conformity evaluation upon awarding an occupational qualification.
3. Description and introduction of occupational qualifications.
4. Career planning and creation of a basis for lifelong learning.
5. Identification of personnel training needs and planning of training.
6. Drafting of job descriptions and recruitment of employees.
7. Comparison of occupational and educational qualifications.

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| **Occupational qualification title** | **Estonian qualifications framework (EstQF) level** |
| *Gardener, level 4* | *4* |

**Part A**

**JOB DESCRIPTION**

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| **A.1 Job description** |
| There are four occupational qualifications on the professional field of gardening: assisting gardener, level 2; gardener’s assistant, level 3; gardener, level 4 and senior gardener, level 5.  Level 4 gardener is a skilled worker who understands basic work related facts and principles. They fulfil basic tasks in all fields of gardening - vegetable and fruit growing, arboretum, floriculture, etc. A gardener chooses and uses tools and methods suitable for garden work, acts according to a plan and in an economical and resourceful manner. Their main tasks are preparing sowing and planting ground, sowing and planting and caring for horticulture plants; harvesting crops/produce, preserving it and preparing it for sale. A gardener supervises standard work of their subordinates and, within their sphere of competence, is responsible for improving other workers. Plans their activities and behavior according to the situation. A gardener values ethical beliefs and ideas, follows good gardening practice and environmental- and work safety requirements.  Owning a driver’s license is favorable when working as a gardener. |
| **A.2 Units** |
| A.2.1 Planning work and tools  A.2.2 Preparing the sowing and planting area, and sowing and planting  A.2.3 Caring for horticultural plants  A.2.4 Harvesting crops / produce, its preservation and preparation for sale  A.2.5 Propagating foliage and growing cuttings  A.2.6 Management  **Optional units**  A.2.7 Planting and maintaining lawn  A.2.8 Creating and maintaining greenery  A.2.9 Installing paving (concrete stone, natural stones, wood- and sifting paths)  A.2.10 Selling garden goods  A.2.11 Creating flower arrangements and compositions  A.2.12 Establishing and maintaining indoor greenery  The list of tasks connected to units has been specified in Annex 1 „Units and tasks“ of the occupational standard. |
| **A.3 Working environment and specific aspects of work** |
| The work of a gardener has flexible working hours, if necessary, it also includes holidays. The work is diverse and takes place in both indoor and outdoor environment.  The health risks related to the work of a gardener are lifting weights, noise, working with mechanisms, working in heights, variation of weather conditions and temperatures, humidity and contact with different allergens (e.g. plants, chemicals, pollen, etc.). |
| **A.4 Tools** |
| Main tools of a gardener are:  gardening tools: substrates, packaging materials, fertilizers, pots, plant protecting agents, horticultural covering materials, supporting means, mulches, carts, shovels, rakes, spades, different cutting and other tools;  machinery and devices: tractors, soil cultivation tools, sowing and planting machines, fertilizers, plant protection sprayers, harvesting machines, mowers, edgers, chainsaws, hedge cutters, loaders, watering systems, greenhouse automatics and other machines and devices;  measuring tools: growth parameter indicators, measuring tape, scales and other measuring tools;  means of communication: computer and phone, etc.;  other tools: cleaning and other equipment. |
| **A.5 Personal characteristics necessary for this job: abilities and personality traits** |
| The work of level 4 gardener requires honesty, motivated attitude, co-ordination, laboriousness, resilience; good stress-, load- and environmental tolerance; ability to adapt, take responsibility and make decisions, work in a team and learn from experience; correctness, social attitude, creativity, independency and desire to improve. |
| **A.6 Occupational training** |
| Initial occupational qualification of gardener, level 4, can be acquired by completing a respective vocational educational training.  Gardener, level 4 occupational qualification certificate is generally available for application by people with horticultural work experience and secondary education or vocational education and who have completed business training. |
| **A.7 Possible job titles** |
| Vegetable grower, fruit grower, gardener, arboretum gardener, flower grower, agricultural worker, horticultural worker, production manager. |
| **A.8 Regulations on working on the professional field** |
| Plant protection certificate according to Plant Protection Act. |

**Part B**

**COMPETENCE REQUIREMENTS**

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| **B.1. The structure of the occupational qualification** |
| When applying for the occupational qualification of gardener, level 4, certification of obligatory competences B.2.1-B.2.6 and B.2.13 (transversal competence) is required and at least one transversal competence B.2.7-B.2.12 must also be certified. |

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| **B.2 Competences** |

**Obligatory competences**

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| **B.2.1 Planning work and tools** | **EstQF level 4** |
| Performance indicators:   1. calculates the volume of materials (soils, foliage, seeds, pots, fertilizers, garden tools, etc.) by considering planned production volume, acquires additional information from relevant sources; 2. acquires materials according to calculated volumes; 3. assesses the suitability of growth location and –substrate for intended horticultural plants; 4. plans demand for labor within the work segment by considering planned activities; 5. plans the work time and –volume of their own and a small work group by considering the specific task. | |
| Supporting knowledge:   1. classification of materials and their qualities; 2. qualities of soil and growth substrates; 3. legal requirements applying to their professional field; 4. basics of organization management; 5. agrotechnology of horticultural plants (see Annex 2). | |
| Assessment method(s):  Practical work and interview. | |

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| **B.2.2 Preparing sowing and planting ground, and sowing and planting** | **EstQF level 4** |
| Performance indicators:   1. prepares the workplace and growing area of horticultural plants (installs necessary means, weeds, cleans, digs, flattens, etc.) according to planned activities, by using manual or mechanical tools if necessary; if necessary, includes a subcontractor according to planned activities; 2. fertilizers horticultural plants manually, with hand mechanisms, fertilizer feeder or fertilizer sower, according to the fertilization plan, tunes and, if necessary, adjusts mechanisms according to their user manuals and work safety requirements; 3. visually assesses the quality of nursery stock, including assessing the quality of forced horticultural plants and categorizes it according to specified requirements; 4. adjust sowing- and planting norms according to the plan; sows seeds, prickles soil and plants horticultural plants manually or with a machine, according to sowing norms and planting schemes; inspects the work result and follows the work goal; 5. mulches both manually and by using different mechanisms, while considering agrotechnological requirements of horticultural plants; 6. supports horticultural plants by considering their characteristics; plans and supervises the creation of support system, if necessary, includes a subcontractor according to the volume of work; 7. instructs colleagues and checks the work result according to the work goal. | |
| Supporting knowledge:   1. classification of nursery stock, qualities and quality requirements; 2. classification of most commonly grown plants and common weeds; 3. classification and growth requirements of forcing materials; 4. basics of agrotechnology of horticultural plants. | |
| Assessment method(s):  Practical work. | |

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| **B.2.3 Caring for horticultural plants** | **EstQF level 4** |
| Performance indicators:   1. establishes the maintenance need of horticultural plants according to the agrotechnology of horticultural plants; 2. establishes fertilization norms, fertilizes horticultural plants manually, with fertilizer feeder or fertilizer sower, according to the fertilization plan, tunes and, if necessary, adjusts mechanisms according to their user manual and work safety requirements; 3. waters horticultural plants manually or by using watering systems, adjust and, if necessary, regulates watering mechanisms while following work safety requirements; 4. performs maintenance activities (including monitoring the growth conditions of forced plants) manually or by using suitable machines; 5. performs plant protection procedures (including with plant protection agents that require a plant protection certificate) and follows work- and environmental safety requirements; keeps account of plant protection agents; 6. performs weed-killing procedures by using relevant tools and methods according to instructions; 7. protects the plantation from unfavorable weather conditions, animals and birds by using relevant auxiliaries; 8. shapes and cuts plants according to the goal. | |
| Supporting knowledge:   1. basics of agrotechnology; 2. ways for protecting horticultural plants from unfavorable weather conditions; 3. ways for protecting horticultural plants from animals and birds; 4. principles and methods of caring for horticultural plants; 5. classification, qualities and care requirements of forcing materials; 6. classification of most commonly grown plants and common weeds; 7. classification of most common plant diseases and pests, principles of plant protection. | |
| Assessment method(s):  Practical work. | |

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| **B.2.4 Harvesting crops or produce, preserving it and preparing it for sale** | **EstQF level 4** |
| Performance indicators:   1. assesses the conformity of the quality of crops or produce to quality requirements; 2. performs selective and bulk harvesting and pieces out the produce according to quality requirements; 3. plans storage and stores the produce by using necessary techniques and considering work safety requirements and storage conditions; 4. sorts the crops or produce according to quality requirements; 5. packages and labels the crops or produce according to relevant requirements. | |
| Supporting knowledge:   1. quality requirements and categories; 2. classification of harvesting equipment, their work- and maintenance principles; 3. classification of repositories and basics of storage conditions. | |
| Assessment method(s):  Practical work and interview. | |

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| **B.2.5 Propagation of foliage and growing cuttings** | **EstQF level 4** |
| Performance indicators:  by taking into account propagation time, -conditions and -methods:   1. grafts (buds, scion grafts, etc.); 2. propagates foliage (ground shoots, stolons, etc.) by taking into account the propagation methods of plants; 3. propagates with cuttings (leaf-, root-, brach cuttings, woody-stemmed cuttings, softwood cuttings, turion, etc.); 4. propagates generatively (picks out plants and seeds, pollinates, etc.) depending on plants; 5. grows cuttings by taking into account the growth requirements of different plant species; 6. packages and labels the produce according to the specifics of foliage. | |
| Supporting knowledge:   1. principles of vegetative propagation of foliage; 2. principles of generative propagation of foliage; 3. principles of arboretum management. | |
| Assessment method(s):  Practical work and a theoretical assignment. | |

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| **B.2.6 Management** | **EstQF level 4** |
| Performance indicators:   1. manages and supervises the work of one gardener or a small workgroup by considering their tasks, their efficient management, occupational health and work safety requirements and the choice of suitable tools and methods of work; 2. advises their colleagues in analyzing and fixing mistakes, by considering given tasks, the choice of proper tools and work methods and quality requirements; 3. assures that quality requirements are being followed by considering the observance of budget and work schedule, requirements for gardening work established by relevant legislation and good practice. | |
| Supporting knowledge:   1. basics of business and management; 2. requirements of legislation concerning the professional field of a gardener. | |
| Assessment method(s):  Practical work. | |

**Optional competences**

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| **B.2.7 Planting and maintaining lawn** | **EstQF level 4** |
| Performance indicators:   1. prepares the ground by taking into account its special characteristics, if necessary, performs chemical weed-killing by using relevant technical means and following environmental- and work safety requirements; 2. lays down the grass area according to the project (work description); 3. sows grass seed and fertilizer either manually or with a sower and compresses the soil while considering sowing norms; 4. installs transplant grass, by taking account the specifics of the ground and weather conditions; 5. waters the grass after sowing, assesses the periodical need for watering and waters it as necessary in the whole extent of the grass surface; 6. assesses the need for mowing and mows the lawn by using mechanisms (lawnmower, edger) and following work safety requirements; 7. assesses the need for fertilization and fertilizes the lawn either manually or with a sower as necessary; 8. performs other maintenance tasks (mulching, aerating, erect cutting, killing moss, correction- and supplementary sowing, etc.). | |
| Supporting knowledge:   1. lawn types; types and sorts of grass seeds and their suitability for seed mixes; 2. basics of manual and mechanical soil cultivation; 3. principles of use of tools for soil cultivation and grass grooming; 4. principles of creating different types of lawn; 5. principles of laying down a lawn area; 6. principles of watering and fertilizing horticultural plants; 7. principles of maintenance work. | |
| Assessment method(s):  Practical work. | |

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| **B.2.8 Establishing and caring for greenery** | **EstQF level 4** |
| Performance indicators:   1. according to the project (work description) marks planting areas, their height and location of plants; 2. prepares the growth base by taking into account the project, existing ground and plants to be planted and, if necessary, kills weed; 3. installs the edges of the planting area according to the vertical planning of the location; 4. installs geotextiles according to the project (work description) and specifics of the location; 5. sows seeds; plants, waters, supports and cuts back plants according to the project (work description) and by taking into account the type and size of the cutting, its species, growth requirements, weather- and soil conditions; 6. plants large trees/brushes according to the project (work description) and by following work safety requirements; 7. mulches according to the project (work description) and growth requirements of plants; 8. clips or rejuvenates hedges by using proper hedge cutters and –trimmers, and by following work- and workplace safety requirements and good gardening practice; 9. maintains (supports, cuts, waters, mulches, aerates, weeds, prepares for winter) plants and planting areas, while following good gardening practice; 10. performs plant protection procedures by using plant protection agents according to established requirements; 11. fertilizes according to the fertilization system and by considering fertilization norms; 12. performs maintenance-, shaping- and rejuvenation cutting of fruit- and decorative trees and berry- and decorative brushes while following good gardening practice; 13. composts plant waste in order to create an organic circulation and assure ecological strengthening of plant health. | |
| Supporting knowledge:   1. classification and growth requirements of garden plants; 2. classification of common weeds; 3. planting requirements of plants arising from the growth environment at the location; 4. types of cuttings; 5. categorization of geotextiles, mulches and different edge materials; 6. categorization and work- and maintenance principles of measuring instruments used for laying down horticultural plants and greenery (horisontal and vertical); 7. principles of laying down horticultural plants and greenery; 8. categorization of plant protection agents and principles of plant protection tasks; 9. basics of fertilizing horticultural plants; 10. caring principles of greenery; 11. work- and maintenance principles of tools used in caring for greenery; 12. principles of maintenance cutting and shaping of horticultural plants; 13. principles of composting (or compost management) and waste handling. | |
| Assessment method(s):  Practical work, an interview. | |

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| **B.2.9 Installing paving (concrete stone, natural stones, wood- and sifting paths)** | **EstQF level 4** |
| Performance indicators:   1. lays down paths and sites according to the project (work description) and, if there is no project, taking into account the specifics of the location; 2. hollows out the path and installs base layers (filling layer, cold protection layer, carrying layer, leveling layer), by using suitable techniques and following legislation concerning landscaping and work safety requirements; 3. installs path edges and paving, performs necessary concrete works according to the project (work description), and by using grinder or stone cutting guillotine if necessary, and by following work safety requirements; 4. finishes different types of paving while following quality requirements and project (work description). | |
| Supporting knowledge:   1. principles of hollowing out paths and building base layers; 2. principles of laying down paths and sites; 3. construction requirements of paths and sites; 4. principles of use of simpler mechanisms (grinder, stone cutting guillotine, tamper and concrete mixer); 5. principles of mixing concrete. | |
| Assessment method(s):  Practical work. | |

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| **B.2.10 Selling garden goods** | **EstQF level 4** |
| Performance indicators:   1. designs the interior and display of the sales location, if necessary, by co-operating with specialists and taking into account the specifics of the sales location; 2. prepares goods for sale and puts them out in the salesroom by considering the specifics of sales location; 3. compiles and handles accompanying documents and sales reports of the goods and checks the product volume in stock as required; 4. finds out the needs of customers by asking guiding questions and taking into account their opportunities and wishes, cultural background and traditions of the customer; 5. formalizes orders received from customers and arranges them to be fulfilled by taking into account the specifics of the order; 6. advises the customer and introduces goods by recommending different options and opportunities; 7. sells products and offers an opportunity to make additional purchases, assuring the satisfaction of the customer; 8. handles customer accounts by using different payment methods (cash, payment terminal, invoice); 9. packages goods by taking into account the specifics of work, weather conditions and means of transportation; 10. solves problems and customer complaints within their sphere of competence, if necessary, forwards the problem to a more experienced colleague. | |
| Supporting knowledge:   1. classification and qualities of foliage and garden goods; 2. basics of sales work and client service and good practice; 3. company’s requirements; 4. principles of placement of goods; 5. understanding the compliance of goods and accompanying documents; 6. principles of stock accounting; 7. basics of the seasonality of garden goods; 8. basics of cash management; 9. packaging principles of gardening goods. | |
| Assessment method(s):  Practical work, interview, observation, combined method. | |

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| **B.2.11 Creating flower arrangements and compositions** | **EstQF level 4** |
| Performance indicators:   1. chooses the best arrangement or composition for the idea or composition solution; 2. establishes a work goal and chooses appropriate work methods, materials and techniques, by taking into account the requirements of specific task (size, heaviness, volume, steadiness, durability, conditions); 3. plans their time consumption by considering the size, difficulty and volume of the task; 4. co-ordinates the distribution of work of their subordinates according to the task in hand; 5. establishes the price of work by considering its size, materials used, level of difficulty, volume, conditions and time cost; 6. packages flower arrangements by taking into account the specifics of the work and weather conditions; 7. if necessary, organizes the transportation of flower arrangements according to the order. | |
| Supporting knowledge:   1. rules of composition; 2. different flower arrangements; 3. placement methods and techniques; 4. tools and materials; 5. work methods; 6. packaging principles; 7. principles of transport management; 8. principles of price design. | |
| Assessment method(s):  Practical work, interview, observation, study map, combined method. | |

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| **B.2.12 Establishing and caring for indoor greenery** | **EstQF level 4** |
| Performance indicators:   1. analyses the situation at the location of indoor greenery by taking into account the specifics of the location and project goal; 2. creates project (work description) budgets by considering materials used for establishing and caring for indoor greenery and their volumes; 3. establishes indoor greenery according to the project (work description) and specifics of the location; 4. decides on the caring requirements of indoor greenery and performs maintenance by considering the project (work description) and specifics of the location; 5. establishes a maintenance schedule. | |
| Supporting knowledge:   1. classification and caring principles of house plants; 2. growth requirements of house plants; 3. growth systems of plants (pots, watering systems, etc.); 4. classification of most common plant diseases and pests, principles of plant protection; 5. basics of creating a maintenance schedule for indoor greenery; 6. principles of budget creation. | |
| Assessment method(s):  Practical work. | |

**Transversal competences**

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| **B.2.13 Gardener, level 4 transversal competence** | **EstQF level 4** |
| Performance indicators:   1. values good gardening practices and gardener’s ethics; 2. fulfils responsibilities taken and achieves work goals within the specified time period; gives rational evaluations and analyses feedback and accepts relevant decisions and assures that they will be fulfilled; 3. is open to co-operation, participates in teamwork, shares necessary and useful information with teammates, acts towards achieving the best common result; solves conflicts; 4. wants, can and dares to voice and defend their opinion; has necessary knowledge and skills for instructing colleagues; presents written materials in a structured and logical form; 5. assesses risk factors and environmental risks connected to the job and implements measures for dampening such risks, takes into account environmental requirements; assures that all safety requirements are being followed during the work; keeps their workplace clean; 6. in case of an accident, provides first aid, calls for professional help and notifies the location manager or their employer of the situation; 7. language skills: proficiency level B2 in Estonian and A2 in one foreign language (see Annex 3); 8. uses computer on level Module 1, Module 4 and Module 7 (see Annex 4). | |
| Supporting knowledge:   1. definition of terms used in relevant manuals; 2. plant names in Latin; 3. classification of most common horticultural plants and their seeds; classification of common weeds; 4. agrotechnology of horticultural plants; 5. ergonomics, environmental- and work safety requirements and waste handling; 6. work methods and tools; 7. anatomy, physiology and systematics of plants; 8. classification of most common plant diseases and pests, principles of plant protection; 9. work and maintenance principles of mechanisms used in gardening; 10. principles of composting (compost management) or waste handling. | |
| Assessment method(s):  Integrated with assessment of other competences specified in the occupational standard. | |

**Part C**

**GENERAL INFORMATION AND ANNEXES**

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| **C.1 Information on the preparation and approval of the occupational standard, on the body awarding occupational qualifications, and reference to the location of the occupational standard in classifications** | |
| 1. Designation of the occupational standard in the register of occupational qualifications | 11-09042014-2.2/7k |
| 1. *The occupational standard is compiled by:* | Madis Kahu, *AS Sagro*  Leo-Kaupo Kivirand, *FIE Lillekasvatus*  Tiina Paasik,  *Räpina School of Horticulture*  Mihkel Saar, *Hansaplant*  Aita Sauemägi, *SA Innove*  Indrek Teder, *Baltic Agro AS*  Elmar Zimmer, *Seedri Puukool* |
| 1. The occupational standard is approved by: | Toiduainetööstuse ja Põllumajanduse Kutsenõukogu |
| 1. No. of the decision of the Sectoral Council: | 23 |
| 1. Date of the decision of the Sectoral Council: | 09.04.2014 |
| 1. The occupational standard is valid until (date) | 08.04.2019 |
| 1. Occupational standard version No. | 7 |
| 1. Reference to the Classification of Occupations (ISCO 08) | 611 Field crop and vegetable growers |
| 1. Reference to the level in the European Qualifications Framework (EQF) | 4 |
| **C.2 Title of occupational qualification in foreign languages** | |
| In Estonian Aednik | |
| In Finnish Puutarhuri | |
| In Russian Садовод | |
| **C.3 Annexes** | |
| Lisa 1[Units](http://www.kutsekoda.ee/et/kutseregister/kutsestandardid/10434073/lisad/10434077/lisa-1-tooosad-ja-ulesandedekr-4pdf) and tasks  Lisa 2 [Terms](http://www.kutsekoda.ee/et/kutseregister/kutsestandardid/10434073/lisad/10434080/lisa2-agrotehnikapdf) related to the professional field of a gardener  Lisa 3 Language skills  Lisa 4 [Computer](http://www.kutsekoda.ee/et/kutseregister/kutsestandardid/10463859/lisad/10463868/lisa-4arvuti-kasutamise-oskused2013pdf) skills  Lisa 5 [List](http://www.kutsekoda.ee/et/kutseregister/kutsestandardid/10434073/lisad/10434088/lisa-5-taimmaterjali-nimekiripdf) of foliage | |