Management of Organic Production

**Objective of the exercise:** Adopting basic concepts and calculations in the field of management of organic production in our country and abroad.

**Content of the exercise:** Characteristics of the basic concepts and differences between the ecological conventional soil management system

 Addressing examples from organic production

**Characteristics of the basic concepts and differences between the ecological and conventional land management systems**

The general objective of organic production is to achieve a closed system of mass and energy cycles in which the natural requirements of soil, plants, animals and humans are substantially taken into account.

**Conversion** in organic production is the period during which the transition from conventional farming to organic production takes place.

**Organic products** are plant and animal products produced by the organic production system.

**Organic food** is food produced from organic products using authorized ingredients, additives and materials.

**Organic producer** means a natural or legal person who has been issued with a certificate of competence for the production and processing of organic products or organic food.

**Conventional management** is a method of agricultural production that uses different traditional practices.

**The objectives of organic** production are:

* production of harmless foodstuffs,
* maintaining soil fertility, in particular organic matter,
* the establishment of conditions for natural animal husbandry,
* rational management of natural resources,
* protection against disturbance of the environment and balance in nature.

The fundamental differences between the conventional and ecological agricultural systems are summarized in Table.

Table 17: Differences between conventional and organic farming systems

|  |  |
| --- | --- |
| **Conventional system** | **Ecological system** |
| Quantum priority | Quality priority |
| The requirement of profitability of production (economic) is put before biological and ecological | The requirement of biological and ecological balance is put before the economic requirement |
| Production is specialized | Production is multifaceted |
| Unilateral crop rotation | Varied crop rotation |
| Use of inorganic lightly soluble fertilizers | Use of organic slowly soluble fertilizers |
| Use of agrochemicals and growth regulators | Efforts to regulate the production system itself (e.g. occurrence of harmful agents and others...) |

 **Addressing examples from organic production**

**Example 1:**

Table shows the **evolution of organically managed agricultural land (EPP) and agricultural land (PP) in EU countries in 2006-2009**. Calculate the percentage of organically managed agricultural land from the total area of agricultural land in the EU country concerned. Then rank the countries according to the calculated percentage for the years 2006-2009. Graphically illustrate and calculate (using the Excel spreadsheet) the trend of the development of organically managed agricultural land in Slovakia for the next period.

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Country/year** | **2007** |  |  | **2008** | **2009** |
| Organic farming (ha) | Farming in total (ha) | % | Organic farming (ha) | Farming in total (ha) | % | Organic farming (ha) | Farming in total (ha) | % |
| **Belgium** | 32 628 | 1376709 |   | 35 721 | 1373885 |   | 41 459 | 1372815 |   |
| **Bulgaria** | 13 646 | 3032444 |   | 16 663 | 3029636 |   | 16 663 | 3029636 |   |
| **Cyprus** | 2 322 | 146037,7 |   | 2 322 | 146037,7 |   | 3 816 | 146206,9 |   |
| **Czech Republic** | 312 890 | 4251223 |   | 341 632 | 4249154 |   | 398 407 | 4247409 |   |
| **Denmark** | 142 857 | 2660279 |   | 150 104 | 2661418 |   | 156 433 | 2660425 |   |
| **Estonia** | 79 530 | 906841,5 |   | 87 346 | 907019,7 |   | 95 167 | 907216,4 |   |
| **Finland** | 148 760 | 2292142 |   | 150 374 | 2292287 |   | 166 171 | 2292014 |   |
| **France** | 557 133 | 27580842 |   | 580 956 | 27403585 |   | 677 513 | 27429676 |   |
| **Greece** | 279 895 | 8280917 |   | 317 824 | 8276667 |   | 326 252 | 8280508 |   |
| **Netherlands** | 47 019 | 1911341 |   | 50 434 | 1932337 |   | 51 911 | 1929777 |   |
| **Ireland** | 41 122 | 4153737 |   | 44 751 | 4143611 |   | 47 864 | 4126207 |   |
| **Lithuania** | 120 418 | 2646549 |   | 122 200 | 2650759 |   | 129 055 | 2650000 |   |
| **Latvia** | 150 505 | 1774823 |   | 161 625 | 1774149 |   | 161 625 | 1774149 |   |
| **Luxembourg** | 3 380 | 131007,8 |   | 3 535 | 130925,9 |   | 3 614 | 130942 |   |
| **Hungary** | 122 270 | 4230796 |   | 122 816 | 4235034 |   | 140 292 | 4225663 |   |
| **Malta** | 12 | 10000 |   | 12 | 10000 |   | 12 | 10000 |   |
| **Germany** | 865 336 | 16967373 |   | 907 786 | 16967963 |   | 947 115 | 16943023 |   |
| **Poland** | 285 878 | 15452865 |   | 313 944 | 15465222 |   | 367 062 | 15487848 |   |
| **Portugal** | 229 717 | 3475295 |   | 209 090 | 3473256 |   | 209 090 | 3473256 |   |
| **Austria** | 481 636 | 2826502 |   | 491 825 | 2820097 |   | 518 757 | 2804092 |   |
| **Romania** | 131 401 | 13687604 |   | 140 132 | 13738431 |   | 168 288 | 13794098 |   |
| **Slovakia** | 123 819 | 1931654 |   | 136 669 | 1935822 |   | 146 762 | 1931079 |   |
| **Slovenia** | 29 322 | 488700 |   | 29 838 | 489147,5 |   | 29 388 | 488985 |   |
| **Spain** | 804 884 | 24919009 |   | 1 129 844 | 24886432 |   | 1 330 774 | 24874280 |   |
| **Sweden** | 308 273 | 3117017 |   | 336 439 | 3118063 |   | 391 524 | 3117229 |   |
| **Italy** | 1 150 253 | 12738128 |   | 1 002 414 | 12737154 |   | 1 106 684 | 12749816 |   |
| **United Kingdom** | 682 196 | 16127565 |   | 737 631 | 16140722 |   | 721 726 | 16145996 |   |

Table shows the **evolution of organically managed agricultural land (EPP) and the number of farms operating organic production in EU countries in 2006-2009**. Calculate the average farm area in each EU country. Then rank the countries according to the calculated average area of the farm for 2009. What is your opinion on the average area of a farm in Slovakia?

|  |  |  |  |
| --- | --- | --- | --- |
| **Country/year** | **2009** | **2008** | **2007** |
| Number or organic farms  | Organic farming (ha) | Average farm hectares | Number or organic farms  | Organic farming (ha) | Average farm hectares | Number or organic farms  | Organic farming (ha) | Average farm hectares |
| **Belgium** | 997 | 41 459 |   | 901 | 35 721 |   | 821 | 32 628 |   |
| **Bulgaria** | 254 | 16 663 |   | 254 | 16 663 |   | 240 | 13 646 |   |
| **Cyprus** | 732 | 3 816 |   | 305 | 2 322 |   | 305 | 2 322 |   |
| **Czech Republic** | 2 665 | 398 407 |   | 1 946 | 341 632 |   | 1 318 | 312 890 |   |
| **Denmark** | 2 694 | 156 433 |   | 2 753 | 150 104 |   | 2 841 | 142 857 |   |
| **Estonia** | 1 277 | 95 167 |   | 1 259 | 87 346 |   | 1 211 | 79 530 |   |
| **Finland** | 4 087 | 166 171 |   | 3 991 | 150 374 |   | 3 971 | 148 760 |   |
| **France** | 16 446 | 677 513 |   | 13 298 | 580 956 |   | 11 978 | 557 133 |   |
| **Greece** | 23 665 | 326 252 |   | 24 057 | 317 824 |   | 23 769 | 279 895 |   |
| **Netherlands** | 1 413 | 51 911 |   | 1 402 | 50 434 |   | 1 465 | 47 019 |   |
| **Ireland** | 1 306 | 47 864 |   | 1 220 | 44 751 |   | 1 140 | 41 122 |   |
| **Lithuania** | 2 652 | 129 055 |   | 2 797 | 122 200 |   | 2 348 | 120 418 |   |
| **Latvia** | 4 203 | 161 625 |   | 4 203 | 161 625 |   | 4 108 | 150 505 |   |
| **Luxembourg** | 77 | 3 614 |   | 85 | 3 535 |   | 81 | 3 380 |   |
| **Hungary** | 1 617 | 140 292 |   | 1 614 | 122 816 |   | 1 389 | 122 270 |   |
| **Malta** | 30 | 12 |   | 30 | 12 |   | 30 | 12 |   |
| **Germany** | 21 047 | 947 115 |   | 19 813 | 907 786 |   | 18 703 | 865 336 |   |
| **Poland** | 17 092 | 367 062 |   | 14 888 | 313 944 |   | 11 887 | 285 878 |   |
| **Portugal** | 1 902 | 209 090 |   | 1 902 | 209 090 |   | 1 949 | 229 717 |   |
| **Austria** | 21 000 | 518 757 |   | 19 961 | 491 825 |   | 19 997 | 481 636 |   |
| **Romania** | 3 078 | 168 288 |   | 2 775 | 140 132 |   | 2 238 | 131 401 |   |
| **Slovakia** | 458 | 146 762 |   | 349 | 136 669 |   | 280 | 123 819 |   |
| **Slovenia** | 2 096 | 29 388 |   | 2 067 | 29 838 |   | 2 000 | 29 322 |   |
| **Spain** | 25 291 | 1 330 774 |   | 21 291 | 1 129 844 |   | 18 226 | 804 884 |   |
| **Sweden** | 4 816 | 391 524 |   | 3 686 | 336 439 |   | 2 848 | 308 273 |   |
| **Italy** | 43 029 | 1 106 684 |   | 44 371 | 1 002 414 |   | 45 231 | 1 150 253 |   |
| **United Kingdom** | 121 | 721 726 |   | 118 | 737 631 |   | 92 | 682 196 |   |

**Example 2:**

Tables show the cost and benefit components from producers in both the ecological and conventional R&D sector management system in the CVD. Costs and revenues are shown in terms of per unit area and unit of production. Calculate total costs, total revenues, profit or loss and profitability rates for each RV sector based on the underlying data in the tables. Then make a comparison of organic and conventional crop production in terms of economic results achieved.

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Organic farming - corn production area (€/ha) |  |  |  |  |  |
| **Sector**  | **Salary costs** | **Material costs** | **Overhead costs** | **TOTAL Costs**  | **Revenue** | **Subsidiaries** | **Other revenues**  | **TOTAL Revenues** | **Result (Profit)** |
| **Wheat**  | 247,25 | 385,48 | 243,11 |   | 1 392,57 | 183,06 | -267,14 |   |  |
| **Barley**  | 126,32 | 152,7 | 99,07 |   | 486,15 | 157,38 | -93,95 |   |  |
| **Spelt** | 130,21 | 268,07 | 175,07 |   | 613,52 | 190,15 | 1,98 |   |  |
| **Corn for grain** | 220,52 | 502,6 | 314,21 |   | 1 541,77 | 190,13 | -430,37 |   |  |
| **Sunflower** | 187,18 | 366,42 | 229,24 |   | 1 076,48 | 184,02 | -160,42 |   |  |
| **Peas** | 32,89 | 81,99 | 45,37 |   | 74,76 | 34,22 | -67,61 |   |  |
| **Average** |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |
| Konventional farming- corn production area (€/ha) |  |  |  |  |  |
| **Sector**  | **Salary costs** | **Material costs** | **Overhead costs** | **TOTAL Costs**  | **Revenue** | **Subsidiaries** | **Other revenues**  | **TOTAL Revenues** | **Result (Profit)** |
| **Wheat**  | 15,56 | 588,78 | 88,09 |   | 590,12 | 118,66 | 94,01 |   |  |
| **Barley**  | 19,26 | 562,34 | 84,18 |   | 559,81 | 112,87 | 150,73 |   |  |
| **Spelt** |   |   |   |   |   |   |   |   |  |
| **Corn for grain** | 18,1 | 501,51 | 109,8 |   | 647,08 | 138,81 | 153,99 |   |  |
| **Sunflower** | 19,84 | 634,36 | 110,79 |   | 639,49 | 136,5 | -183,19 |   |  |
| **Peas** | 9,77 | 423,26 | 94,14 |   | 223,85 | 71,94 | 125,79 |   |  |
| **Average** |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |
| Organic farming - corn production area EUR/t |  |  |  |  |  |
| **Sector**  | **Salary costs** | **Material costs** | **Overhead costs** | **TOTAL Costs**  | **Revenue** | **Subsidiaries** | **Other revenues**  | **TOTAL Revenues** | **Result (Profit)** |
| **Wheat**  | 59,53 | 92,81 | 58,53 |   | 335,29 | 44,08 | -64,32 |   |  |
| **Barley**  | 38,45 | 46,48 | 30,16 |   | 147,98 | 47,91 | -28,6 |   |  |
| **Spelt** | 42,78 | 88,07 | 57,51 |   | 201,55 | 62,47 | 0,65 |   |  |
| **Corn for grain** | 33,41 | 76,14 | 47,6 |   | 233,57 | 28,8 | -65,2 |   |  |
| **Sunflower** | 62,6 | 122,54 | 76,66 |   | 360 | 61,54 | -53,65 |   |  |
| **Peas** | 18,59 | 46,33 | 25,63 |   | 42,24 | 19,34 | -38,2 |   |  |
| **Average** |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |
| Konventional farming- corn production area EUR/t |  |  |  |  |  |
| **Sector**  | **Salary costs** | **Material costs** | **Overhead costs** | **TOTAL Costs**  | **Revenue** | **Subsidiaries** | **Other revenues**  | **TOTAL Revenues** | **Result (Profit)** |
| **Wheat**  | 3,37 | 126,6 | 18,7 |   | 128,38 | 25,83 | 18,71 |   |  |
| **Barley**  | 4,7 | 133,68 | 19,87 |   | 134,78 | 27,41 | 35,07 |   |  |
| **Spelt** |   |   |   |   |   |   |   |   |  |
| **Corn for grain** | 2,9 | 95,96 | 18,67 |   | 110,79 | 23,69 | 26,55 |   |  |
| **Sunflower** | 8 | 257,35 | 43,76 |   | 263,23 | 56,05 | -64,19 |   |  |
| **Peas** | 8,6 | 304,48 | 84,41 |   | 170,85 | 52,28 | 72,52 |   |  |
| **Average** |  |  |  |  |  |  |  |  |  |

Apply the same calculation procedure to data from HVO. The underlying data for HVO can be found in Tables …

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Organic farming - mountainous production area (€/ha) |  |  |  |  |  |
| **Sector**  | **Salary costs** | **Material costs** | **Overhead costs** | **TOTAL Costs**  | **Revenue** | **Subsidiaries** | **Other revenues**  | **TOTAL Revenues** | **Result (Profit)** |
| Wheat | 47,66 | 54,72 | 41,84 |   | 10,17 | 85,97 | 39,67 |   |  |
| Barley | 28,06 | 341,42 | 94,59 |   | 73,19 | 151,54 | 109,78 |   |  |
| Triticale | 154,05 | 212,48 | 86,66 |   | 0 | 221,64 | 577,24 |   |  |
| Potatoes | 1 050,40 | 2 987,71 | 489,21 |   | 811,07 | 37,27 | 2 203,18 |   |  |
| Oats | 13,49 | 279,11 | 65,3 |   | 285,06 | 122,04 | 334,37 |   |  |
| Fodder | 37,99 | 151,92 | 45,27 |   | 0 | 11,89 | 82,77 |   |  |
| Meadows | 6,02 | 29,07 | 23,03 |   | 0 | 183,88 | -2,81 |   |  |
| Pastures | 5,7 | 13,81 | 9,04 |   | 2,6 | 97,77 | -36,82 |   |  |
| **Average** |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |   |  |
|  |  |  |  |  |  |  |  |  |  |
| Konventional farming- corn production area (€/ha) |  |  |  |  |  |
| **Sector**  | **Salary costs** | **Material costs** | **Overhead costs** | **TOTAL Costs**  | **Revenue** | **Subsidiaries** | **Other revenues**  | **TOTAL Revenues** | **Result (Profit)** |
| Wheat | 51,77 | 1 452,28 | 395,84 |   | 629,33 | 636,88 | 764,42 |   |  |
| Barley | 61,15 | 1 277,17 | 395,09 |   | 635,97 | 495,98 | 602,29 |   |  |
| Triticale |   |   |   |   |   |   |   |   |  |
| Potatoes | 1 028,25 | 5 863,27 | 1 290,72 |   | 2 790,78 | 2 109,61 | 1 715,43 |   |  |
| Oats | 91,26 | 1 235,77 | 449,29 |   | 223,79 | 389,89 | 754,91 |   |  |
| Fodder | 43,07 | 1 057,60 | 391,26 |   | 0,57 | 121 | 820,29 |   |  |
| Meadows | 12,89 | 265,1 | 82,17 |   | 1,58 | 106,22 | 188,81 |   |  |
| Pastures | 4,82 | 86,47 | 32,41 |   | 1,93 | 26,44 | 138,99 |   |  |
| **Average** |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |
| Organic farming - corn production area EUR/t |  |  |  |  |  |
| **Sector**  | **Salary costs** | **Material costs** | **Overhead costs** | **TOTAL Costs**  | **Revenue** | **Subsidiaries** | **Other revenues**  | **TOTAL Revenues** | **Result (Profit)** |
| Wheat | 22,3 | 28,99 | 16,19 |   | 4,76 | 45,55 | 132,41 |   |  |
| Barley | 17,79 | 198,65 | 59,79 |   | 46,41 | 76,66 | 566,49 |   |  |
| Triticale | 43,04 | 83,09 | 0,49 |   | 0 | 86,67 | 743,09 |   |  |
| Potatoes | 62,19 | 453,15 | -247,29 |   | 48,02 | 5,65 | 17,16 |   |  |
| Oats | 5,46 | 72,08 | 15,02 |   | 1,64 | 41,19 | 55,94 |   |  |
| Fodder | 1,56 | 7,9 | -2,51 |   | 0 | 0,62 | 109,8 |   |  |
| Meadows | 0,51 | 2,3 | 2,11 |   | 0 | 14,57 | 11,86 |   |  |
| Pastures | 1,72 | 3,17 | 3,74 |   | 0,79 | 22,41 | -16,53 |   |  |
| **Average** |  |  |  |  |  |  |  |  |  |
|  |  |  |   |  |  |  |   |  |  |
|  |  |  |  |  |  |  |  |  |  |
| Konventional farming- corn production area EUR/t |  |  |  |  |  |
| **Sector**  | **Salary costs** | **Material costs** | **Overhead costs** | **TOTAL Costs**  | **Revenue** | **Subsidiaries** | **Other revenues**  | **TOTAL Revenues** | **Result (Profit)** |
| Wheat | 16,03 | 430,46 | 117,91 |   | 189,32 | 191,39 | 225,69 |   |  |
| Barley | 18,15 | 378,21 | 117,65 |   | 187,44 | 146,41 | 175,57 |   |  |
| Triticale |   |   |   |   |   |   |   |   |  |
| Potatoes | 52,24 | 471,7 | 108,15 |   | 206,96 | 140,91 | 241,93 |   |  |
| Oats | 43,5 | 597,63 | 217,96 |   | 106,37 | 184,55 | 361,18 |   |  |
| Fodder | 1,46 | 42,86 | 15,78 |   | 0,02 | 4,88 | 33,13 |   |  |
| Meadows | 1,45 | 29,62 | 9,23 |   | 0,18 | 12,06 | 21,14 |   |  |
| Pastures | 0,86 | 15,46 | 5,79 |   | 0,35 | 4,81 | 24,82 |   |  |
| **Average** |  |  |  |  |  |  |  |  |  |