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Assessment of Fertilizer Use by Crop at the Global Level

International Fertilizer Association (IFA) and International Plant Nutrition Institute (IPNI)

2014-2014/15

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## Introductory and Explanatory Notes

Fully understanding the contribution of the different crop types to fertilizer use at the national, regional and global levels is an essential component of fertilizer consumption analysis and a prerequisite to the development of sound fertilizer demand forecasts and scientific assessments and modelling. However, this information is rarely available, challenging to collect, and time-consuming to process. In order to fill the gap, the International Fertilizer Association (IFA) carries out regular surveys (every 3 to 4 years) on fertilizer use by crop in the main fertilizer-consuming countries. This survey benefited from the agronomic expertise of the International Plant Nutrition Institute (IPNI) to validate estimates.

The previous assessment was published in 2013 and referred to the 2010-2010/11 campaign. One country has been added to this update: New Zealand. Moreover, the crop breakdown has been fine-tuned, with the addition of the grassland category.

IFA’s country estimates currently cover 28 countries (considering the European Union (EU-28) as a single country). These countries account together for 94% of world fertilizer consumption.

In this assessment, crops have been divided into 14 groups:

1. Wheat;
2. Rice;
3. Maize (for grain and silage);
4. Other Cereals: barley, sorghum, oats, rye, triticale, millet, etc.;
5. Soybean;
6. Oil Palm;
7. Other Oilseeds: rapeseed/canola, mustard, sunflower, groundnut, coconut, etc.;
8. Fibre Crops: cotton, flax, hemp, jute, etc.;
9. Sugar Crops: sugar cane and sugar beet;
10. Roots & Tubers: potato, cassava, sweet potato, yam, etc.;
11. Fruits;
12. Vegetables;
13. Grassland: temporary and permanent grassland and pastures for hay, silage and grazing;
14. Residual: pulses, nut trees, rubber, cocoa, coffee, tea, tobacco, etc., as well as forestry, fish ponds, ornamentals, turf, golf courses, homes, gardens, and other potential non-industrial/non-feed uses.

Total nutrient consumption figures used in this report are those published in September 2017 on IFADATA online for the 2014-2014/15 campaign. Country estimates of fertilizer use by crop have been adjusted accordingly. Please note that consumption time series for China have been revised since the previous assessment.

Detailed estimates of fertilizer use by crop in 2014-2014/15 in the 28 countries are given in Annexes 3 and 4 of the report. Estimates can also be downloaded in Excel format.

Data published in this report are estimates based on the best information available to IFA and IPNI. They provide an order of magnitude but are not hard data and, as such, should be used and interpreted with the necessary caution. Differences from the previous assessments can reflect changes in crop mix, weights of the different countries, fertilizer management practices, data quality, or a combination of these. This dataset is expected to improve over time with the progressive increase of the country and crop coverage. Understanding fertilizer applications to coffee, tea and cocoa will be a priority for the next update, with an extended coverage in Latin America and Africa.

# Breakdown of Total Fertilizer Use by Crop Category

Total world fertilizer consumption reached 181.9 million metric tonnes (Mt) of nutrients in 2014- 2014/151, of which 102.5 Mt N, 45.9 Mt P2O5 and 33.5 Mt K2O.

Out of this total, 89.6 Mt are estimated to have been applied to cereals, i.e. slightly less than half (49.3%) of world fertilizer use. Of the top-three cereals, maize was the greatest contributor to world fertilizer consumption (16.2%), followed by wheat (15.3%) and rice (13.7%). Fertilizer use on the other cereals represented 4.0% of the world total.

Global applications to oil crops are estimated at 23.2 Mt, or 12.7% of world consumption, with market shares of 5.4% for soybean, 2.7% for oil palm and 4.6% for the other oilseeds.

Fibre and sugar crops each accounted for around 4% of world applications (3.7% and 4.1%, respectively), and roots & tubers for 2.3%.

Fruits and vegetables together represented 15.8% of the world market, with fruits consuming 7.2% of the total, and vegetables 8.6%.

Applications to grassland are estimated to account for 4.3% of the world total, but this share is likely underestimated due to information gaps for some countries.

The ‘residual’ category, which includes a wide range of plant species (including non- agricultural species), received the remaining 7.8% of global fertilizer use.

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| **Total Fertilizer Use by Crop at the Global Level** |
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# Comparison of Total Fertilizer Use by Crop Category between Countries

At the national level, there is a huge diversity in the contributions from the different crop categories to total domestic fertilizer consumption. This is mostly due to differences in the crop mix and intensification level of the different cropping systems.

The largest contributors of national fertilizer consumption in the five leading markets are fruits and vegetables in China (37%), rice in India (29%), maize in the United States (47%), wheat

1 In 2014 for countries with fertilizer statistics expressed in calendar years (e.g. China, Brazil, Indonesia) and in 2014/15 for countries with statistics expressed in fertilizer years (e.g. India, United States, European Union).

and grassland in the European Union (26% and 16%, respectively) and soybean and sugarcane in Brazil (40% and 14%, respectively).

Extreme examples of fertilizer use are found in Bangladesh, where rice accounts for 69% of total fertilizer consumption; Malaysia, where oil palm plantations consume 83% of the fertilizer used domestically; and New Zealand, where the bulk of fertilizer is applied to grassland (89%).

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| **Relative Contribution of the Different Crop Categories to**  **Total Fertilizer Consumption in the World and the Top-5 Markets** |
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# Breakdown of Total Fertilizer Use by Nutrient and by Crop Category

Because different crops have different nutrient requirements, their contribution to N, P and K consumption varies significantly. Cereals have a much larger impact on N fertilizer consumption, while soybean (a leguminous crop that can biologically fix atmospheric N) only boost P and K consumption, and crops with massive biomass such as oil palm and sugarcane stimulate K use. Fruits and vegetables also contribute significantly to P and K consumption.

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| **Fertilizer Use by Crop: Breakdown by Nutrient by Crop** |
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It is estimated that 57.3 Mt N were applied to cereals in 2014-2014/15, representing 55.9% of world fertilizer N consumption. Wheat was the main crop receiving N fertilizers, with 18.2% of global use, followed by maize with 17.8% and rice with 15.2%. Other cereals accounted for 4.7% of the world total. Because of soybean, which fixes N from the atmosphere, oil crops contributed modestly (7.8%) to world N fertilizer consumption. Rapeseed (under the ‘other

oilseeds’ category) was the main oilseed crop receiving N fertilizers. Cotton, sugar crops, and roots & tubers represented 4.1%, 3.6% and 2.1% of global fertilizer N use, respectively. Fruits and vegetables accounted for 13.5% of the total, of which 6.1% was applied to fruits and 7.4% to vegetables. Grassland received 4.7% of world N fertilizer use, and the remaining 8.3% was applied to other agricultural and non-agricultural plant species (residual).

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| **N Fertilizer Use by Crop at the Global Level** |
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As far as P is concerned, it is estimated that cereals received 20.5 Mt P2O5 in 2014-2014/15,

i.e. 44.6% of world P fertilizer applications, with a higher contribution of wheat (14.6%) compared to maize (13.9%), rice (12.5%) and other cereals (3.6%). Oilseed crops accounted for 16.1% of total consumption (7.4 Mt P2O5), with oil palm representing 1.9%, soybean 9.7% and the other annual oilseeds 4.5%. Fibre crops, sugar crops, and roots & tubers contributed to 3.8%, 3.6% and 2.5% of global P fertilizer consumption, respectively. The market share of fruits and vegetables is estimated at 18.7%, with 8.8% going to fruits and 9.9% to vegetables. Grassland received 4.0% of total P fertilizer applications, and the residual plant species account for the use of the remaining 6.7%.

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| **P Fertilizer Use by Crop at the Global Level** |
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The contribution of the different crop categories to world K fertilizer consumption is quite different. High K-consuming crops (oil palm and sugar crops in particular) have a strong impact on K fertilizer use. In 2014-2014/15, cereals received 11.8 Mt K2O, i.e. 35.2% of world K consumption, with a low contribution of wheat (7.4%) compared to rice (11.0%) and maize (14.2%). Other cereals received only 2.7% of the total K use. Oilseeds represented 23.1% of

the total (7.7 Mt K2O), with the bulk being applied to soybean (12.3%) and oil palm (8.0%), other oilseeds accounting for only 2.8%. K fertilizer use on fibre crops and roots & tubers was modest (2.4% and 2.5% of total K use, respectively) compared to sugar crops (6.3%). Fruits and vegetables are large K fertilizer consumers, with a 19.1% share of the world total, of which 8.5% went to fruits and 10.6% to vegetables. Grassland used 3.8% of total K applications, and the remaining 7.6% was applied to other plant species (residual).

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| **K Fertilizer Use by Crop at the Global Level** |
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The contribution of the 14 crop categories to global N, P and K fertilizer consumption is summarized in the figure below.

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| **World N, P and K Fertilizer Use by Crop (Mt nutrients)** |
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# Comparison with the Previous Assessment

Compared to the previous assessment (relative to the 2010-2010/11 campaign), fertilizer applications to soybean and oil palm increased sharply, reflecting rising area planted to those crops. In contrast, applications to minor cereal and oilseed crops, as well as to roots & tubers declined. Fertilizer use on maize, wheat and rice is influenced by continuous gains in N use efficiency. The variation for fruits and vegetables is due to reallocation of fertilizer use between the two sub-groupings. Applications to the ‘residual’ category have contracted as applications to grassland have been individualized since the previous survey.

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| **Crop Contribution Changes Between 2010/11 and 2014/15** |
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Annex 1

# Estimates of Total Fertilizer Use by Crop Category at the Global Level

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Crop Category** | **2010-2010/11** | **2014-2014/15** | **∆** | **2010-2010/11** | **2014-2014/15** |
| **Quantity (Mt nutrients)** | |  | **Share (%)** | |
| Wheat | 27.1 | 27.9 | +0.7 | 15.8 | 15.3 |
| Rice | 24.7 | 25.0 | +0.3 | 14.3 | 13.7 |
| Maize | 27.8 | 29.4 | +1.6 | 16.1 | 16.2 |
| Other Cereals | 7.8 | 7.3 | -0.5 | 4.6 | 4.0 |
| *Cereals* | *87.5* | *89.6* | *+2.2* | *50.8* | *49.3* |
| Soybean | 6.6 | 9.7 | +3.1 | 3.9 | 5.4 |
| Oil Palm | 3.5 | 5.0 | +1.5 | 2.0 | 2.7 |
| Other Oilseeds | 8.9 | 8.5 | -0.4 | 5.2 | 4.6 |
| *Oilseeds* | *19.0* | *23.2* | *+4.1* | *11.0* | *12.7* |
| Fibre Crops | 7.0 | 6.7 | -0.2 | 4.1 | 3.7 |
| Sugar Crops | 7.2 | 7.5 | +0.3 | 4.2 | 4.1 |
| Roots &Tubers | 5.2 | 4.1 | -1.1 | 3.0 | 2.3 |
| Fruits | 10.1 | 13.1 | +3.1 | 5.8 | 7.2 |
| Vegetables | 16.1 | 15.7 | -0.4 | 9.3 | 8.6 |
| *Fruits & Vegetables* | *26.2* | *28.8* | *+2.6* | *15.2* | *15.8* |
| Grassland\* | --- | 7.9 | --- | --- | 4.3 |
| Residual | 20.1 | 14.2 | -6.0 | 11.7 | 7.8 |
| Total | 172.2 | 181.9 | +9.7 | 100.0 | 100.0 |

(\*) Estimates for grassland were not available in 2010-2010/11.

Annex 2

# Estimates of Fertilizer Use by Nutrient and by Crop Category at the Global Level

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
|  | **Crop Category** | **2010-2010/11** | **2014-2014/15** | **2010-2010/11** | **2014-2014/15** |
| **Quantity (Mt nutrients)** | | **Share (%)** | |
| **N** | Wheat | 18.9 | 18.7 | 18.1 | 18.2 |
| Rice | 16.0 | 15.6 | 15.4 | 15.2 |
| Maize | 17.6 | 18.3 | 16.8 | 17.8 |
| Other Cereals | 5.0 | 4.8 | 4.8 | 4.7 |
| *Cereals* | *57.5* | *57.3* | *55.2* | *55.9* |
| Soybean | 1.0 | 1.1 | 0.9 | 1.1 |
| Oil Palm | 1.1 | 1.4 | 1.1 | 1.4 |
| Other Oilseeds | 5.6 | 5.5 | 5.3 | 5.3 |
| *Oilseeds* | *7.6* | *8.0* | *7.3* | *7.8* |
| Fibre Crops | 4.5 | 4.2 | 4.3 | 4.1 |
| Sugar Crops | 3.7 | 3.7 | 3.5 | 3.6 |
| Roots & Tubers | 2.9 | 2.1 | 2.8 | 2.1 |
| Fruits | 6.1 | 6.2 | 5.8 | 6.1 |
| Vegetables | 9.5 | 7.6 | 9.1 | 7.4 |
| *Fruits & Vegetables* | *15.6* | *13.8* | *15.0* | *13.5* |
| Grassland | --- | 4.8 | --- | 4.7 |
| Residual | 12.5 | 8.5 | 12.0 | 8.3 |
| Total | 104.3 | 102.5 | 100.0 | 100.0 |
|  | | | | | |
| **P2O5** | Wheat | 6.5 | 6.7 | 16.1 | 14.6 |
| Rice | 5.2 | 5.8 | 12.8 | 12.5 |
| Maize | 6.4 | 6.4 | 15.2 | 13.9 |
| Other Cereals | 1.6 | 1.6 | 4.4 | 3.6 |
| *Cereals* | *19.7* | *20.5* | *48.5* | *44.6* |
| Soybean | 3.2 | 4.5 | 7.9 | 9.7 |
| Oil Palm | 0.4 | 0.9 | 1.0 | 1.9 |
| Other Oilseeds | 2.3 | 2.1 | 5.8 | 4.5 |
| *Oilseeds* | *6.0* | *7.4* | *14.7* | *16.1* |
| Fibre Crops | 1.7 | 1.7 | 4.3 | 3.8 |
| Sugar Crops | 1.4 | 1.7 | 3.6 | 3.6 |
| Roots & Tubers | 1.3 | 1.1 | 3.2 | 2.5 |
| Fruits | 2.2 | 4.1 | 5.3 | 8.8 |
| Vegetables | 3.8 | 4.5 | 9.4 | 9.9 |
| *Fruits & Vegetables* | *6.0* | *8.6* | *14.8* | *18.7* |
| Grassland | --- | 1.8 | --- | 4.0 |
| Residual | 4.5 | 3.1 | 11.0 | 6.7 |
| Total | 40.5 | 45.9 | 100.0 | 100.0 |
|  | | | | | |
| **K2O** | Wheat | 1.7 | 2.5 | 6.2 | 7.4 |
| Rice | 3.5 | 3.7 | 12.6 | 11.0 |
| Maize | 4.1 | 4.8 | 14.9 | 14.2 |
| Other Cereals | 1.0 | 0.9 | 3.7 | 2.7 |
| *Cereals* | *10.3* | *11.8* | *37.4* | *35.2* |
| Soybean | 2.5 | 4.1 | 9.0 | 12.3 |
| Oil Palm | 2.0 | 2.7 | 7.2 | 8.0 |
| Other Oilseeds | 1.0 | 0.9 | 3.5 | 2.8 |
| *Oilseeds* | *5.4* | *7.7* | *19.8* | *23.1* |
| Fibre Crops | 0.8 | 0.8 | 2.8 | 2.4 |
| Sugar Crops | 2.1 | 2.1 | 7.7 | 6.3 |
| Roots & Tubers | 1.0 | 0.8 | 3.8 | 2.5 |
| Fruits | 1.8 | 2.8 | 6.6 | 8.5 |
| Vegetables | 2.8 | 3.6 | 10.0 | 10.6 |
| *Fruits & Vegetables* | *4.6* | *6.4* | *16.6* | *19.1* |
| Grassland | --- | 1.3 | --- | 3.8 |
| Residual | 3.2 | 2.5 | 11.8 | 7.6 |
| Total | 27.4 | 33.5 | 100.0 | 100.0 |

Annex 3

**Estimates of Fertilizer Use by Crop Category in Selected Countries** (‘000 tonnes nutrients)

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | | | **CEREALS** | | | | **OILSEEDS** | | |  | | | **FRUITS/VEG** | |  | |
| Wheat | Rice | Maize | Oth Ce | Soy | Palm | Oth OS | Fibre | Sugar | R&T | Fruits | Veg | Grass | Residual |
|  | | % of World | Qty (kt) | Qty (kt) | Qty (kt) | Qty (kt) | Qty (kt) | Qty (kt) | Qty (kt) | Qty (kt) | Qty (kt) | Qty (kt) | Qty (kt) | Qty (kt) | Qty (kt) | Qty (kt) |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| China | N | 24.5% | 3 396 | 3 899 | 4 654 | 201 | 201 | 5 | 755 | 729 | 478 | 956 | 3 396 | 4 654 | 503 | 1 328 |
|  | P2O5 | 33.2% | 2 013 | 1 769 | 1 815 | 122 | 229 | 3 | 564 | 534 | 336 | 519 | 2 898 | 3 127 | 610 | 714 |
| K2O | 24.4% | 965 | 1 153 | 826 | 41 | 74 | 8 | 106 | 196 | 139 | 172 | 1 635 | 2 371 | 245 | 246 |
| N+P+K | 26.7% | 6 374 | 6 821 | 7 295 | 364 | 504 | 16 | 1 425 | 1 460 | 953 | 1 646 | 7 929 | 10 152 | 1 359 | 2 288 |
| India | N | 16.5% | 3 949 | 4 932 | 831 | 915 | 271 | 0 | 1 271 | 1 644 | 847 | 136 | 254 | 424 | 0 | 1 475 |
|  | P2O5 | 13.3% | 1 275 | 1 683 | 293 | 348 | 268 | 0 | 421 | 488 | 354 | 67 | 134 | 220 | 0 | 549 |
| K2O | 7.6% | 261 | 884 | 127 | 127 | 43 | 0 | 157 | 228 | 215 | 58 | 114 | 144 | 0 | 175 |
| N+P+K | 14.1% | 5 485 | 7 500 | 1 250 | 1 390 | 583 | 0 | 1 849 | 2 360 | 1 417 | 261 | 502 | 788 | 0 | 2 198 |
| USA | N | 11.5% | 1 561 | 201 | 5 577 | 445 | 178 | 0 | 139 | 240 | 96 | 113 | 97 | 132 | 1 337 | 1 708 |
|  | P2O5 | 9.2% | 563 | 48 | 2 044 | 142 | 746 | 0 | 27 | 89 | 58 | 69 | 27 | 71 | 168 | 172 |
| K2O | 13.7% | 170 | 44 | 2 050 | 45 | 1 182 | 0 | 5 | 121 | 34 | 74 | 107 | 62 | 311 | 392 |
| N+P+K | 11.3% | 2 294 | 294 | 9 671 | 632 | 2 107 | 0 | 171 | 450 | 188 | 256 | 230 | 265 | 1 815 | 2 272 |
| EU-28 | N | 11.0% | 3 281 | 45 | 1 506 | 1 284 | 1 | 0 | 1 205 | 34 | 169 | 191 | 472 | 258 | 1 944 | 848 |
|  | P2O5 | 5.6% | 581 | 15 | 401 | 258 | 10 | 0 | 261 | 15 | 75 | 98 | 182 | 121 | 259 | 292 |
| K2O | 8.7% | 494 | 29 | 404 | 278 | 15 | 0 | 314 | 20 | 126 | 181 | 161 | 149 | 415 | 338 |
| N+P+K | 9.2% | 4 356 | 90 | 2 310 | 1 819 | 26 | 0 | 1 780 | 70 | 369 | 470 | 815 | 528 | 2 619 | 1 479 |
| Brazil | N | 3.8% | 179 | 182 | 1 059 | 50 | 266 | 12 | 8 | 164 | 802 | 38 | 119 | 60 | 79 | 854 |
|  | P2O5 | 10.3% | 121 | 84 | 572 | 34 | 2 693 | 4 | 13 | 173 | 297 | 51 | 58 | 86 | 41 | 524 |
| K2O | 16.1% | 82 | 73 | 623 | 32 | 2 633 | 17 | 8 | 136 | 834 | 41 | 120 | 75 | 22 | 698 |
| N+P+K | 7.7% | 383 | 340 | 2 254 | 116 | 5 592 | 34 | 29 | 473 | 1 932 | 131 | 297 | 221 | 142 | 2 077 |
| Indonesia | N | 2.9% | 0 | 1 192 | 447 | 0 | 15 | 745 | 15 | 3 | 60 | 89 | 104 | 149 | 0 | 161 |
|  | P2O5 | 2.9% | 0 | 399 | 133 | 0 | 20 | 506 | 20 | 3 | 20 | 33 | 47 | 67 | 0 | 84 |
| K2O | 5.3% | 0 | 177 | 71 | 0 | 9 | 1 240 | 9 | 1 | 44 | 27 | 62 | 71 | 0 | 61 |
| N+P+K | 3.3% | 0 | 1 769 | 651 | 0 | 44 | 2 491 | 44 | 7 | 124 | 149 | 213 | 286 | 0 | 306 |
| Pakistan | N | 3.2% | 1 359 | 497 | 149 | 17 | 0 | 0 | 33 | 597 | 199 | 33 | 133 | 66 | 0 | 232 |
|  | P2O5 | 2.1% | 449 | 117 | 39 | 5 | 0 | 0 | 10 | 176 | 44 | 10 | 39 | 20 | 0 | 68 |
| K2O | 0.1% | 12 | 5 | 1 | 0 | 0 | 0 | 0 | 3 | 2 | 2 | 5 | 1 | 0 | 3 |
| N+P+K | 2.4% | 1 819 | 619 | 189 | 22 | 0 | 0 | 43 | 776 | 245 | 45 | 177 | 87 | 0 | 302 |

*Note: ‘Residual’ includes pulses, nut trees, rubber, cocoa, coffee, tea, tobacco, etc., as well as forestry, fish ponds, ornamentals, turf, golf courses, homes, gardens, and other potential non-industrial/non-feed uses*

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | | | **CEREALS** | | | | **OILSEEDS** | | |  | | | **FRUITS/VEG** | |  | |
| Wheat | Rice | Maize | Oth Ce | Soy | Palm | Oth OS | Fibre | Sugar | R&T | Fruits | Veg | Grass | Residual |
|  | | % of World | Qty (kt) | Qty (kt) | Qty (kt) | Qty (kt) | Qty (kt) | Qty (kt) | Qty (kt) | Qty (kt) | Qty (kt) | Qty (kt) | Qty (kt) | Qty (kt) | Qty (kt) | Qty (kt) |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Canada | N | 2.5% | 773 | 0 | 201 | 330 | 15 | 0 | 980 | 0 | 1 | 25 | 20 | 12 | 61 | 156 |
|  | P2O5 | 2.1% | 242 | 0 | 59 | 104 | 86 | 0 | 312 | 0 | 0 | 7 | 6 | 4 | 0 | 129 |
| K2O | 1.2% | 100 | 0 | 90 | 39 | 30 | 0 | 57 | 0 | 0 | 7 | 6 | 4 | 0 | 66 |
| N+P+K | 2.2% | 1 115 | 0 | 351 | 473 | 131 | 0 | 1 349 | 0 | 2 | 39 | 32 | 20 | 61 | 351 |
| Vietnam | N | 1.3% | 0 | 812 | 162 | 0 | 5 | 0 | 20 | 2 | 54 | 27 | 57 | 97 | 0 | 117 |
|  | P2O5 | 1.5% | 0 | 448 | 53 | 0 | 5 | 0 | 21 | 0 | 19 | 7 | 31 | 45 | 0 | 71 |
| K2O | 1.8% | 0 | 348 | 36 | 0 | 5 | 0 | 18 | 0 | 36 | 9 | 30 | 48 | 0 | 70 |
| N+P+K | 1.5% | 0 | 1 608 | 251 | 0 | 14 | 0 | 59 | 3 | 109 | 43 | 117 | 190 | 0 | 258 |
| Australia | N | 1.4% | 553 | 8 | 15 | 200 | 0 | 0 | 124 | 80 | 60 | 20 | 32 | 24 | 100 | 190 |
|  | P2O5 | 2.0% | 286 | 2 | 5 | 126 | 0 | 0 | 51 | 21 | 18 | 9 | 19 | 14 | 320 | 48 |
| K2O | 0.7% | 35 | 0 | 0 | 11 | 0 | 0 | 12 | 10 | 35 | 11 | 22 | 13 | 76 | 9 |
| N+P+K | 1.4% | 874 | 10 | 20 | 337 | 0 | 0 | 187 | 111 | 113 | 40 | 73 | 51 | 496 | 247 |
| Thailand | N | 1.4% | 0 | 986 | 85 | 4 | 0 | 35 | 4 | 3 | 85 | 28 | 38 | 70 | 0 | 70 |
|  | P2O5 | 1.1% | 0 | 243 | 35 | 1 | 1 | 35 | 2 | 1 | 50 | 24 | 44 | 35 | 0 | 25 |
| K2O | 1.9% | 0 | 252 | 32 | 2 | 0 | 84 | 3 | 1 | 90 | 45 | 65 | 39 | 0 | 32 |
| N+P+K | 1.4% | 0 | 1 481 | 152 | 8 | 1 | 154 | 10 | 5 | 225 | 98 | 147 | 144 | 0 | 128 |
| Russia | N | 1.4% | 609 | 15 | 163 | 215 | 30 | 0 | 104 | 0 | 82 | 15 | 1 | 6 | 97 | 148 |
|  | P2O5 | 1.3% | 215 | 6 | 62 | 80 | 17 | 0 | 68 | 1 | 71 | 17 | 1 | 6 | 11 | 62 |
| K2O | 1.1% | 74 | 2 | 39 | 51 | 10 | 0 | 25 | 0 | 76 | 23 | 1 | 7 | 10 | 35 |
| N+P+K | 1.3% | 899 | 23 | 264 | 347 | 56 | 0 | 196 | 1 | 229 | 54 | 4 | 19 | 118 | 245 |
| Bangladesh | N | 1.3% | 20 | 1 025 | 32 | 0 | 10 | 0 | 10 | 27 | 12 | 50 | 40 | 45 | 0 | 50 |
|  | P2O5 | 1.3% | 10 | 350 | 32 | 0 | 10 | 0 | 15 | 15 | 10 | 49 | 36 | 55 | 0 | 25 |
| K2O | 1.3% | 6 | 244 | 17 | 0 | 10 | 0 | 23 | 11 | 11 | 35 | 22 | 39 | 0 | 17 |
| N+P+K | 1.3% | 36 | 1 620 | 81 | 0 | 30 | 0 | 48 | 53 | 33 | 133 | 98 | 139 | 0 | 92 |
| Malaysia | N | 0.6% | 0 | 83 | 1 | 0 | 0 | 470 | 0 | 0 | 1 | 1 | 19 | 15 | 0 | 39 |
|  | P2O5 | 0.8% | 0 | 41 | 1 | 0 | 0 | 248 | 0 | 0 | 1 | 0 | 21 | 14 | 0 | 22 |
| K2O | 3.7% | 0 | 62 | 1 | 0 | 0 | 1 117 | 0 | 0 | 1 | 1 | 6 | 5 | 0 | 45 |
| N+P+K | 1.2% | 0 | 186 | 2 | 0 | 0 | 1 835 | 0 | 0 | 3 | 2 | 46 | 34 | 0 | 107 |
| Turkey | N | 1.5% | 627 | 15 | 119 | 164 | 2 | 0 | 82 | 49 | 31 | 22 | 149 | 119 | 0 | 112 |
|  | P2O5 | 1.2% | 245 | 5 | 40 | 68 | 2 | 0 | 31 | 15 | 17 | 10 | 46 | 37 | 0 | 54 |
| K2O | 0.3% | 6 | 2 | 9 | 4 | 1 | 0 | 7 | 3 | 15 | 9 | 29 | 23 | 0 | 10 |
| N+P+K | 1.2% | 878 | 21 | 168 | 236 | 5 | 0 | 120 | 67 | 63 | 41 | 224 | 180 | 0 | 175 |

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | | | **CEREALS** | | | | **OILSEEDS** | | |  | | | **FRUITS/VEG** | |  | |
| Wheat | Rice | Maize | Oth Ce | Soy | Palm | Oth OS | Fibre | Sugar | R&T | Fruits | Veg | Grass | Residual |
|  | | % of World | Qty (kt) | Qty (kt) | Qty (kt) | Qty (kt) | Qty (kt) | Qty (kt) | Qty (kt) | Qty (kt) | Qty (kt) | Qty (kt) | Qty (kt) | Qty (kt) | Qty (kt) | Qty (kt) |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Mexico | N | 1.5% | 82 | 7 | 890 | 50 | 0 | 7 | 9 | 12 | 98 | 9 | 149 | 85 | 0 | 107 |
|  | P2O5 | 0.8% | 11 | 3 | 139 | 6 | 6 | 5 | 2 | 6 | 34 | 4 | 75 | 44 | 0 | 33 |
| K2O | 0.6% | 3 | 2 | 19 | 0 | 2 | 3 | 0 | 3 | 62 | 4 | 65 | 36 | 0 | 16 |
| N+P+K | 1.1% | 95 | 12 | 1 049 | 57 | 8 | 15 | 11 | 21 | 194 | 17 | 289 | 166 | 0 | 156 |
| Ukraine | N | 1.2% | 319 | 1 | 331 | 142 | 35 | 0 | 213 | 0 | 35 | 35 | 6 | 14 | 24 | 26 |
|  | P2O5 | 0.5% | 41 | 0 | 47 | 21 | 13 | 0 | 53 | 0 | 13 | 6 | 2 | 4 | 4 | 8 |
| K2O | 0.7% | 41 | 0 | 47 | 20 | 14 | 0 | 52 | 0 | 20 | 11 | 2 | 5 | 5 | 9 |
| N+P+K | 0.9% | 400 | 2 | 425 | 183 | 62 | 0 | 318 | 0 | 69 | 53 | 10 | 23 | 32 | 43 |
| Argentina | N | 0.8% | 220 | 3 | 211 | 83 | 67 | 0 | 17 | 3 | 25 | 10 | 35 | 10 | 50 | 95 |
|  | P2O5 | 1.3% | 129 | 2 | 119 | 61 | 202 | 0 | 13 | 0 | 1 | 7 | 9 | 7 | 20 | 20 |
| K2O | 0.2% | 0 | 4 | 1 | 0 | 7 | 0 | 1 | 0 | 1 | 6 | 18 | 12 | 0 | 19 |
| N+P+K | 0.8% | 350 | 9 | 332 | 144 | 276 | 0 | 32 | 3 | 27 | 23 | 62 | 29 | 70 | 134 |
| Egypt | N | 1.1% | 238 | 153 | 266 | 17 | 1 | 0 | 25 | 34 | 79 | 34 | 90 | 146 | 0 | 41 |
|  | P2O5 | 0.4% | 26 | 10 | 25 | 8 | 0 | 0 | 6 | 7 | 20 | 15 | 20 | 33 | 0 | 10 |
| K2O | 0.2% | 12 | 0 | 8 | 3 | 0 | 0 | 1 | 2 | 7 | 5 | 9 | 13 | 0 | 3 |
| N+P+K | 0.8% | 276 | 163 | 299 | 28 | 1 | 0 | 32 | 43 | 106 | 54 | 119 | 192 | 0 | 54 |
| Belarus | N | 0.5% | 81 | 0 | 115 | 147 | 0 | 0 | 56 | 1 | 17 | 4 | 0 | 1 | 43 | 50 |
|  | P2O5 | 0.3% | 27 | 0 | 32 | 53 | 0 | 0 | 15 | 3 | 8 | 3 | 0 | 0 | 1 | 9 |
| K2O | 1.8% | 87 | 0 | 122 | 192 | 0 | 0 | 54 | 5 | 22 | 7 | 0 | 1 | 46 | 72 |
| N+P+K | 0.7% | 196 | 0 | 269 | 393 | 0 | 0 | 125 | 9 | 46 | 14 | 1 | 3 | 89 | 131 |
| Iran | N | 0.9% | 309 | 58 | 44 | 62 | 1 | 0 | 24 | 11 | 29 | 37 | 149 | 102 | 52 | 52 |
|  | P2O5 | 0.3% | 56 | 9 | 8 | 9 | 2 | 0 | 8 | 3 | 6 | 8 | 20 | 12 | 6 | 6 |
| K2O | 0.2% | 10 | 2 | 2 | 2 | 1 | 0 | 6 | 1 | 5 | 5 | 19 | 12 | 2 | 2 |
| N+P+K | 0.6% | 374 | 68 | 54 | 73 | 3 | 0 | 38 | 15 | 39 | 49 | 187 | 126 | 60 | 60 |
| Japan | N | 0.4% | 37 | 115 | 0 | 2 | 5 | 0 | 0 | 0 | 15 | 21 | 45 | 76 | 19 | 61 |
|  | P2O5 | 0.8% | 35 | 115 | 0 | 4 | 11 | 0 | 0 | 0 | 14 | 29 | 23 | 69 | 17 | 42 |
| K2O | 0.8% | 22 | 88 | 0 | 3 | 9 | 0 | 0 | 0 | 8 | 19 | 25 | 58 | 15 | 37 |
| N+P+K | 0.6% | 94 | 318 | 0 | 10 | 25 | 0 | 0 | 0 | 36 | 69 | 93 | 203 | 50 | 139 |
| Philippines | N | 0.6% | 0 | 337 | 133 | 0 | 0 | 3 | 13 | 0 | 44 | 4 | 57 | 6 | 0 | 37 |
|  | P2O5 | 0.3% | 0 | 71 | 20 | 0 | 0 | 2 | 0 | 0 | 13 | 3 | 15 | 3 | 0 | 6 |
| K2O | 0.5% | 0 | 49 | 11 | 0 | 0 | 5 | 24 | 0 | 21 | 2 | 41 | 3 | 0 | 6 |
| N+P+K | 0.5% | 0 | 457 | 165 | 0 | 0 | 10 | 37 | 0 | 79 | 9 | 112 | 12 | 0 | 49 |

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | | | **CEREALS** | | | | **OILSEEDS** | | |  | | | **FRUITS/VEG** | |  | |
| Wheat | Rice | Maize | Oth Ce | Soy | Palm | Oth OS | Fibre | Sugar | R&T | Fruits | Veg | Grass | Residual |
|  | | % of World | Qty (kt) | Qty (kt) | Qty (kt) | Qty (kt) | Qty (kt) | Qty (kt) | Qty (kt) | Qty (kt) | Qty (kt) | Qty (kt) | Qty (kt) | Qty (kt) | Qty (kt) | Qty (kt) |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| New-Zealand | N | 0.4% | 9 | 0 | 4 | 9 | 0 | 0 | 0 | 1 | 0 | 2 | 11 | 9 | 384 | 0 |
|  | P2O5 | 0.8% | 7 | 0 | 4 | 7 | 0 | 0 | 0 | 1 | 0 | 1 | 9 | 7 | 319 | 1 |
| K2O | 0.4% | 3 | 0 | 1 | 3 | 0 | 0 | 0 | 0 | 0 | 2 | 7 | 5 | 111 | 0 |
| N+P+K | 0.5% | 18 | 0 | 9 | 18 | 0 | 0 | 1 | 2 | 0 | 5 | 26 | 21 | 814 | 2 |
| South Africa | N | 0.4% | 21 | 0 | 268 | 8 | 5 | 0 | 12 | 1 | 32 | 13 | 27 | 19 | 24 | 9 |
|  | P2O5 | 0.4% | 9 | 0 | 94 | 4 | 8 | 0 | 13 | 0 | 18 | 9 | 9 | 10 | 13 | 6 |
| K2O | 0.4% | 2 | 0 | 19 | 1 | 5 | 0 | 4 | 0 | 47 | 8 | 23 | 12 | 5 | 4 |
| N+P+K | 0.4% | 31 | 0 | 381 | 12 | 18 | 0 | 28 | 1 | 96 | 29 | 59 | 41 | 42 | 19 |
| Uzbekistan | N | 0.6% | 188 | 7 | 6 | 10 | 0 | 0 | 6 | 239 | 0 | 7 | 34 | 34 | 11 | 26 |
|  | P2O5 | 0.3% | 38 | 2 | 1 | 2 | 0 | 0 | 1 | 48 | 0 | 3 | 7 | 8 | 2 | 6 |
| K2O | 0.1% | 4 | 3 | 1 | 0 | 0 | 0 | 0 | 14 | 0 | 1 | 1 | 2 | 0 | 1 |
| N+P+K | 0.4% | 230 | 11 | 8 | 13 | 0 | 0 | 8 | 301 | 0 | 11 | 42 | 44 | 14 | 32 |
| Morocco | N | 0.2% | 88 | 0 | 10 | 35 | 0 | 0 | 7 | 0 | 9 | 6 | 35 | 24 | 0 | 12 |
|  | P2O5 | 0.5% | 82 | 0 | 8 | 27 | 0 | 0 | 9 | 0 | 8 | 7 | 35 | 26 | 0 | 16 |
| K2O | 0.1% | 5 | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 1 | 1 | 13 | 6 | 0 | 1 |
| N+P+K | 0.3% | 175 | 1 | 18 | 63 | 0 | 0 | 16 | 0 | 18 | 14 | 82 | 55 | 0 | 29 |
| Chile | N | 0.2% | 37 | 2 | 25 | 13 | 0 | 0 | 2 | 0 | 3 | 6 | 33 | 7 | 39 | 29 |
|  | P2O5 | 0.3% | 23 | 2 | 9 | 9 | 0 | 0 | 1 | 0 | 2 | 9 | 10 | 4 | 42 | 19 |
| K2O | 0.3% | 6 | 2 | 8 | 2 | 0 | 0 | 1 | 0 | 5 | 9 | 36 | 8 | 15 | 7 |
| N+P+K | 0.2% | 66 | 6 | 42 | 24 | 0 | 0 | 4 | 1 | 9 | 24 | 79 | 18 | 96 | 55 |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| *ROW* | N | 6.4% | 763 | 985 | 978 | 378 | 39 | 143 | 320 | 326 | 352 | 209 | 619 | 906 | 0 | 502 |
|  | P2O5 | 5.1% | 215 | 336 | 303 | 147 | 140 | 71 | 125 | 130 | 168 | 69 | 227 | 383 | 0 | 52 |
| K2O | 5.8% | 70 | 254 | 190 | 39 | 74 | 192 | 53 | 59 | 254 | 61 | 203 | 332 | 0 | 174 |
| N+P+K | 6.0% | 1 048 | 1 574 | 1 470 | 564 | 253 | 406 | 498 | 515 | 774 | 338 | 1 050 | 1 622 | 0 | 728 |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| **World** | N | 100.0% | 18 699 | 15 561 | 18 283 | 4 783 | 1 147 | 1 422 | 5 453 | 4 200 | 3 714 | 2 140 | 6 221 | 7 572 | 4 766 | 8 536 |
|  | P2O5 | 100.0% | 6 699 | 5 762 | 6 391 | 1 647 | 4 469 | 873 | 2 062 | 1 729 | 1 672 | 1 142 | 4 050 | 4 530 | 1 835 | 3 073 |
| K2O | 100.0% | 2 467 | 3 679 | 4 755 | 897 | 4 123 | 2 666 | 942 | 817 | 2 112 | 835 | 2 847 | 3 556 | 1 277 | 2 547 |
| N+P+K | 100.0% | 27 866 | 25 001 | 29 429 | 7 327 | 9 739 | 4 960 | 8 457 | 6 746 | 7 497 | 4 118 | 13 118 | 15 658 | 7 878 | 14 157 |

|  |  |  |
| --- | --- | --- |
| ‘Oth Ce’ = other cereals | ‘Oth OS’ = other oilseeds | ‘Grass’ = grassland |
| ‘Soy’ = soybean | ‘R&T’ = roots & tubers | ‘Oth Cr’ = other crops |
| ‘Palm’ = oil palm | ‘Veg’ = vegetables | ‘ROW’ = rest of the world |

Annex 4

**Estimates of Fertilizer Use by Crop Category in Selected Countries** (% ot Total Domestic Consumption)

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | | | **CEREALS** | | | | **OILSEEDS** | | |  | | | **FRUITS/VEG** | |  | |
| Wheat | Rice | Maize | Oth Ce | Soy | Palm | Oth OS | Fibre | Sugar | R&T | Fruits | Veg | Grass | Residual |
|  | | Total (kt) | % | % | % | % | % | % | % | % | % | % | % | % | % | % |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| China | N | 25 154 | 13.5% | 15.5% | 18.5% | 0.8% | 0.8% | 0.0% | 3.0% | 2.9% | 1.9% | 3.8% | 13.5% | 18.5% | 2.0% | 5.3% |
|  | P2O5 | 15 254 | 13.2% | 11.6% | 11.9% | 0.8% | 1.5% | 0.0% | 3.7% | 3.5% | 2.2% | 3.4% | 19.0% | 20.5% | 4.0% | 4.7% |
| K2O | 8 176 | 11.8% | 14.1% | 10.1% | 0.5% | 0.9% | 0.1% | 1.3% | 2.4% | 1.7% | 2.1% | 20.0% | 29.0% | 3.0% | 3.0% |
| N+P+K | 48 584 | 13.1% | 14.0% | 15.0% | 0.7% | 1.0% | 0.0% | 2.9% | 3.0% | 2.0% | 3.4% | 16.3% | 20.9% | 2.8% | 4.7% |
| India | N | 16 950 | 23.3% | 29.1% | 4.9% | 5.4% | 1.6% | 0.0% | 7.5% | 9.7% | 5.0% | 0.8% | 1.5% | 2.5% | 0.0% | 8.7% |
|  | P2O5 | 6 099 | 20.9% | 27.6% | 4.8% | 5.7% | 4.4% | 0.0% | 6.9% | 8.0% | 5.8% | 1.1% | 2.2% | 3.6% | 0.0% | 9.0% |
| K2O | 2 533 | 10.3% | 34.9% | 5.0% | 5.0% | 1.7% | 0.0% | 6.2% | 9.0% | 8.5% | 2.3% | 4.5% | 5.7% | 0.0% | 6.9% |
| N+P+K | 25 581 | 21.4% | 29.3% | 4.9% | 5.4% | 2.3% | 0.0% | 7.2% | 9.2% | 5.5% | 1.0% | 2.0% | 3.1% | 0.0% | 8.6% |
| USA | N | 11 824 | 13.2% | 1.7% | 47.2% | 3.8% | 1.5% | 0.0% | 1.2% | 2.0% | 0.8% | 1.0% | 0.8% | 1.1% | 11.3% | 14.4% |
|  | P2O5 | 4 225 | 13.3% | 1.1% | 48.4% | 3.4% | 17.6% | 0.0% | 0.6% | 2.1% | 1.4% | 1.6% | 0.6% | 1.7% | 4.0% | 4.1% |
| K2O | 4 597 | 3.7% | 1.0% | 44.6% | 1.0% | 25.7% | 0.0% | 0.1% | 2.6% | 0.7% | 1.6% | 2.3% | 1.3% | 6.8% | 8.5% |
| N+P+K | 20 646 | 11.1% | 1.4% | 46.8% | 3.1% | 10.2% | 0.0% | 0.8% | 2.2% | 0.9% | 1.2% | 1.1% | 1.3% | 8.8% | 11.0% |
| EU-28 | N | 11 238 | 29.2% | 0.4% | 13.4% | 11.4% | 0.0% | 0.0% | 10.7% | 0.3% | 1.5% | 1.7% | 4.2% | 2.3% | 17.3% | 7.5% |
|  | P2O5 | 2 569 | 22.6% | 0.6% | 15.6% | 10.1% | 0.4% | 0.0% | 10.2% | 0.6% | 2.9% | 3.8% | 7.1% | 4.7% | 10.1% | 11.4% |
| K2O | 2 924 | 16.9% | 1.0% | 13.8% | 9.5% | 0.5% | 0.0% | 10.8% | 0.7% | 4.3% | 6.2% | 5.5% | 5.1% | 14.2% | 11.6% |
| N+P+K | 16 731 | 26.0% | 0.5% | 13.8% | 10.9% | 0.2% | 0.0% | 10.6% | 0.4% | 2.2% | 2.8% | 4.9% | 3.2% | 15.7% | 8.8% |
| Brazil | N | 3 872 | 4.6% | 4.7% | 27.4% | 1.3% | 6.9% | 0.3% | 0.2% | 4.2% | 20.7% | 1.0% | 3.1% | 1.6% | 2.0% | 22.1% |
|  | P2O5 | 4 752 | 2.5% | 1.8% | 12.0% | 0.7% | 56.7% | 0.1% | 0.3% | 3.6% | 6.2% | 1.1% | 1.2% | 1.8% | 0.9% | 11.0% |
| K2O | 5 395 | 1.5% | 1.4% | 11.5% | 0.6% | 48.8% | 0.3% | 0.1% | 2.5% | 15.5% | 0.8% | 2.2% | 1.4% | 0.4% | 12.9% |
| N+P+K | 14 019 | 2.7% | 2.4% | 16.1% | 0.8% | 39.9% | 0.2% | 0.2% | 3.4% | 13.8% | 0.9% | 2.1% | 1.6% | 1.0% | 14.8% |
| Indonesia | N | 2 981 | 0.0% | 40.0% | 15.0% | 0.0% | 0.5% | 25.0% | 0.5% | 0.1% | 2.0% | 3.0% | 3.5% | 5.0% | 0.0% | 5.4% |
|  | P2O5 | 1 331 | 0.0% | 30.0% | 10.0% | 0.0% | 1.5% | 38.0% | 1.5% | 0.2% | 1.5% | 2.5% | 3.5% | 5.0% | 0.0% | 6.3% |
| K2O | 1 772 | 0.0% | 10.0% | 4.0% | 0.0% | 0.5% | 70.0% | 0.5% | 0.1% | 2.5% | 1.5% | 3.5% | 4.0% | 0.0% | 3.5% |
| N+P+K | 6 083 | 0.0% | 29.1% | 10.7% | 0.0% | 0.7% | 40.9% | 0.7% | 0.1% | 2.0% | 2.5% | 3.5% | 4.7% | 0.0% | 5.0% |
| Pakistan | N | 3 315 | 41.0% | 15.0% | 4.5% | 0.5% | 0.0% | 0.0% | 1.0% | 18.0% | 6.0% | 1.0% | 4.0% | 2.0% | 0.0% | 7.0% |
|  | P2O5 | 975 | 46.0% | 12.0% | 4.0% | 0.5% | 0.0% | 0.0% | 1.0% | 18.0% | 4.5% | 1.0% | 4.0% | 2.0% | 0.0% | 7.0% |
| K2O | 33 | 35.0% | 15.0% | 3.0% | 0.0% | 0.0% | 0.0% | 0.0% | 10.0% | 6.0% | 5.0% | 15.0% | 3.0% | 0.0% | 8.0% |
| N+P+K | 4 323 | 42.1% | 14.3% | 4.4% | 0.5% | 0.0% | 0.0% | 1.0% | 17.9% | 5.7% | 1.0% | 4.1% | 2.0% | 0.0% | 7.0% |

*Note: ‘Residual’ includes pulses, nut trees, rubber, cocoa, coffee, tea, tobacco, etc., as well as forestry, fish ponds, ornamentals, turf, golf courses, homes, gardens, and other potential non-industrial/non-feed uses*

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | | | **CEREALS** | | | | **OILSEEDS** | | |  | | | **FRUITS/VEG** | |  | |
| Wheat | Rice | Maize | Oth Ce | Soy | Palm | Oth OS | Fibre | Sugar | R&T | Fruits | Veg | Grass | Residual |
|  | | Total (kt) | % | % | % | % | % | % | % | % | % | % | % | % | % | % |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Canada | N | 2 575 | 30.0% | 0.0% | 7.8% | 12.8% | 0.6% | 0.0% | 38.1% | 0.0% | 0.0% | 1.0% | 0.8% | 0.5% | 2.4% | 6.1% |
|  | P2O5 | 949 | 25.5% | 0.0% | 6.3% | 11.0% | 9.1% | 0.0% | 32.8% | 0.0% | 0.0% | 0.8% | 0.6% | 0.4% | 0.0% | 13.5% |
| K2O | 400 | 25.0% | 0.0% | 22.6% | 9.8% | 7.5% | 0.0% | 14.3% | 0.0% | 0.1% | 1.8% | 1.5% | 0.9% | 0.0% | 16.6% |
| N+P+K | 3 924 | 28.4% | 0.0% | 8.9% | 12.1% | 3.3% | 0.0% | 34.4% | 0.0% | 0.0% | 1.0% | 0.8% | 0.5% | 1.6% | 9.0% |
| Vietnam | N | 1 354 | 0.0% | 60.0% | 12.0% | 0.0% | 0.4% | 0.0% | 1.5% | 0.1% | 4.0% | 2.0% | 4.2% | 7.2% | 0.0% | 8.6% |
|  | P2O5 | 700 | 0.0% | 64.0% | 7.5% | 0.0% | 0.8% | 0.0% | 3.0% | 0.1% | 2.8% | 1.0% | 4.4% | 6.4% | 0.0% | 10.1% |
| K2O | 600 | 0.0% | 58.0% | 6.0% | 0.0% | 0.8% | 0.0% | 3.0% | 0.1% | 6.0% | 1.5% | 5.0% | 8.0% | 0.0% | 11.7% |
| N+P+K | 2 654 | 0.0% | 60.6% | 9.5% | 0.0% | 0.5% | 0.0% | 2.2% | 0.1% | 4.1% | 1.6% | 4.4% | 7.2% | 0.0% | 9.7% |
| Australia | N | 1 407 | 39.3% | 0.6% | 1.1% | 14.2% | 0.0% | 0.0% | 8.8% | 5.7% | 4.3% | 1.4% | 2.3% | 1.7% | 7.1% | 13.5% |
|  | P2O5 | 919 | 31.1% | 0.2% | 0.5% | 13.7% | 0.0% | 0.0% | 5.5% | 2.2% | 2.0% | 1.0% | 2.1% | 1.5% | 34.9% | 5.2% |
| K2O | 233 | 14.9% | 0.0% | 0.0% | 4.7% | 0.0% | 0.0% | 5.3% | 4.4% | 15.0% | 4.7% | 9.3% | 5.5% | 32.6% | 3.7% |
| N+P+K | 2 559 | 34.2% | 0.4% | 0.8% | 13.2% | 0.0% | 0.0% | 7.3% | 4.3% | 4.4% | 1.6% | 2.9% | 2.0% | 19.4% | 9.6% |
| Thailand | N | 1 409 | 0.0% | 70.0% | 6.0% | 0.3% | 0.0% | 2.5% | 0.3% | 0.2% | 6.0% | 2.0% | 2.7% | 5.0% | 0.0% | 5.0% |
|  | P2O5 | 498 | 0.0% | 48.9% | 7.0% | 0.3% | 0.3% | 7.0% | 0.5% | 0.2% | 10.0% | 4.9% | 8.9% | 7.0% | 0.0% | 5.0% |
| K2O | 645 | 0.0% | 39.0% | 5.0% | 0.3% | 0.0% | 13.0% | 0.5% | 0.2% | 14.0% | 7.0% | 10.0% | 6.0% | 0.0% | 5.0% |
| N+P+K | 2 552 | 0.0% | 58.0% | 5.9% | 0.3% | 0.1% | 6.0% | 0.4% | 0.2% | 8.8% | 3.8% | 5.8% | 5.6% | 0.0% | 5.0% |
| Russia | N | 1 485 | 41.0% | 1.0% | 11.0% | 14.5% | 2.0% | 0.0% | 7.0% | 0.0% | 5.5% | 1.0% | 0.1% | 0.4% | 6.5% | 10.0% |
|  | P2O5 | 616 | 35.0% | 1.0% | 10.0% | 13.0% | 2.7% | 0.0% | 11.0% | 0.1% | 11.5% | 2.7% | 0.2% | 1.0% | 1.8% | 10.0% |
| K2O | 354 | 21.0% | 0.5% | 11.0% | 14.5% | 2.8% | 0.0% | 7.0% | 0.1% | 21.5% | 6.5% | 0.3% | 2.0% | 2.8% | 10.0% |
| N+P+K | 2 455 | 36.6% | 0.9% | 10.7% | 14.1% | 2.3% | 0.0% | 8.0% | 0.1% | 9.3% | 2.2% | 0.2% | 0.8% | 4.8% | 10.0% |
| Bangladesh | N | 1 321 | 1.5% | 77.6% | 2.4% | 0.0% | 0.8% | 0.0% | 0.8% | 2.0% | 0.9% | 3.8% | 3.0% | 3.4% | 0.0% | 3.8% |
|  | P2O5 | 607 | 1.6% | 57.7% | 5.3% | 0.0% | 1.6% | 0.0% | 2.5% | 2.5% | 1.6% | 8.0% | 6.0% | 9.0% | 0.0% | 4.1% |
| K2O | 435 | 1.3% | 56.1% | 3.9% | 0.0% | 2.3% | 0.0% | 5.2% | 2.6% | 2.6% | 8.0% | 5.0% | 9.0% | 0.0% | 3.9% |
| N+P+K | 2 363 | 1.5% | 68.5% | 3.4% | 0.0% | 1.3% | 0.0% | 2.0% | 2.3% | 1.4% | 5.6% | 4.2% | 5.9% | 0.0% | 3.9% |
| Malaysia | N | 629 | 0.0% | 13.1% | 0.2% | 0.0% | 0.0% | 74.8% | 0.0% | 0.0% | 0.2% | 0.1% | 3.0% | 2.4% | 0.0% | 6.2% |
|  | P2O5 | 348 | 0.0% | 11.9% | 0.2% | 0.0% | 0.0% | 71.2% | 0.0% | 0.0% | 0.2% | 0.1% | 6.0% | 4.0% | 0.0% | 6.4% |
| K2O | 1 237 | 0.0% | 5.0% | 0.1% | 0.0% | 0.0% | 90.3% | 0.0% | 0.0% | 0.1% | 0.1% | 0.5% | 0.4% | 0.0% | 3.7% |
| N+P+K | 2 214 | 0.0% | 8.4% | 0.1% | 0.0% | 0.0% | 82.9% | 0.0% | 0.0% | 0.1% | 0.1% | 2.1% | 1.5% | 0.0% | 4.8% |

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|  | | | **CEREALS** | | | | **OILSEEDS** | | |  | | | **FRUITS/VEG** | |  | |
| Wheat | Rice | Maize | Oth Ce | Soy | Palm | Oth OS | Fibre | Sugar | R&T | Fruits | Veg | Grass | Residual |
|  | | Total (kt) | % | % | % | % | % | % | % | % | % | % | % | % | % | % |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Turkey | N | 1 493 | 42.0% | 1.0% | 8.0% | 11.0% | 0.2% | 0.0% | 5.5% | 3.3% | 2.1% | 1.5% | 10.0% | 8.0% | 0.0% | 7.5% |
|  | P2O5 | 570 | 43.0% | 0.8% | 7.0% | 12.0% | 0.3% | 0.0% | 5.5% | 2.7% | 3.0% | 1.8% | 8.0% | 6.5% | 0.0% | 9.4% |
| K2O | 117 | 5.0% | 1.5% | 7.5% | 3.0% | 0.8% | 0.0% | 6.0% | 2.3% | 13.0% | 7.5% | 25.0% | 20.0% | 0.0% | 8.4% |
| N+P+K | 2 180 | 40.3% | 1.0% | 7.7% | 10.8% | 0.2% | 0.0% | 5.5% | 3.1% | 2.9% | 1.9% | 10.3% | 8.3% | 0.0% | 8.0% |
| Mexico | N | 1 506 | 5.4% | 0.5% | 59.1% | 3.3% | 0.0% | 0.5% | 0.6% | 0.8% | 6.5% | 0.6% | 9.9% | 5.7% | 0.0% | 7.1% |
|  | P2O5 | 367 | 2.9% | 0.7% | 38.0% | 1.6% | 1.5% | 1.2% | 0.5% | 1.6% | 9.4% | 1.0% | 20.4% | 12.1% | 0.0% | 9.0% |
| K2O | 218 | 1.2% | 0.8% | 8.8% | 0.2% | 1.1% | 1.5% | 0.1% | 1.5% | 28.5% | 2.0% | 29.9% | 16.7% | 0.0% | 7.6% |
| N+P+K | 2 090 | 4.5% | 0.6% | 50.2% | 2.7% | 0.4% | 0.7% | 0.5% | 1.0% | 9.3% | 0.8% | 13.8% | 7.9% | 0.0% | 7.5% |
| Ukraine | N | 1 181 | 27.0% | 0.1% | 28.0% | 12.0% | 3.0% | 0.0% | 18.0% | 0.0% | 3.0% | 3.0% | 0.5% | 1.2% | 2.0% | 2.2% |
|  | P2O5 | 214 | 19.0% | 0.2% | 22.0% | 10.0% | 6.0% | 0.0% | 25.0% | 0.0% | 6.0% | 3.0% | 1.0% | 2.0% | 2.0% | 3.8% |
| K2O | 225 | 18.0% | 0.1% | 21.0% | 9.0% | 6.0% | 0.0% | 23.0% | 0.0% | 9.0% | 5.0% | 1.0% | 2.0% | 2.0% | 3.9% |
| N+P+K | 1 620 | 24.7% | 0.1% | 26.2% | 11.3% | 3.8% | 0.0% | 19.6% | 0.0% | 4.2% | 3.3% | 0.6% | 1.4% | 2.0% | 2.6% |
| Argentina | N | 830 | 26.5% | 0.4% | 25.5% | 10.0% | 8.1% | 0.0% | 2.1% | 0.4% | 3.0% | 1.2% | 4.2% | 1.2% | 6.0% | 11.4% |
|  | P2O5 | 590 | 21.9% | 0.3% | 20.2% | 10.3% | 34.3% | 0.0% | 2.2% | 0.1% | 0.2% | 1.1% | 1.5% | 1.1% | 3.4% | 3.4% |
| K2O | 72 | 0.0% | 5.9% | 1.9% | 0.3% | 10.1% | 0.0% | 1.9% | 0.1% | 1.7% | 8.5% | 25.4% | 17.0% | 0.0% | 27.1% |
| N+P+K | 1 491 | 23.4% | 0.6% | 22.3% | 9.7% | 18.5% | 0.0% | 2.1% | 0.2% | 1.8% | 1.5% | 4.2% | 1.9% | 4.7% | 9.0% |
| Egypt | N | 1 122 | 21.2% | 13.6% | 23.7% | 1.5% | 0.1% | 0.0% | 2.2% | 3.0% | 7.0% | 3.0% | 8.0% | 13.0% | 0.0% | 3.7% |
|  | P2O5 | 181 | 14.4% | 5.6% | 13.7% | 4.4% | 0.2% | 0.0% | 3.3% | 3.9% | 11.1% | 8.3% | 11.1% | 18.3% | 0.0% | 5.6% |
| K2O | 63 | 19.0% | 0.0% | 12.7% | 4.8% | 0.0% | 0.0% | 1.6% | 3.2% | 11.1% | 7.9% | 14.3% | 20.6% | 0.0% | 4.8% |
| N+P+K | 1 366 | 20.2% | 11.9% | 21.9% | 2.1% | 0.1% | 0.0% | 2.3% | 3.1% | 7.7% | 3.9% | 8.7% | 14.1% | 0.0% | 4.0% |
| Belarus | N | 515 | 15.8% | 0.0% | 22.3% | 28.6% | 0.0% | 0.0% | 10.8% | 0.2% | 3.3% | 0.9% | 0.1% | 0.2% | 8.3% | 9.7% |
|  | P2O5 | 151 | 17.9% | 0.0% | 21.1% | 35.2% | 0.0% | 0.0% | 10.0% | 2.0% | 5.2% | 1.8% | 0.1% | 0.3% | 0.6% | 5.9% |
| K2O | 609 | 14.3% | 0.0% | 20.1% | 31.5% | 0.0% | 0.0% | 8.9% | 0.9% | 3.5% | 1.2% | 0.1% | 0.2% | 7.5% | 11.8% |
| N+P+K | 1 275 | 15.4% | 0.0% | 21.1% | 30.8% | 0.0% | 0.0% | 9.8% | 0.7% | 3.6% | 1.1% | 0.1% | 0.2% | 7.0% | 10.2% |
| Iran | N | 929 | 33.2% | 6.2% | 4.7% | 6.7% | 0.1% | 0.0% | 2.6% | 1.2% | 3.1% | 4.0% | 16.0% | 11.0% | 5.6% | 5.6% |
|  | P2O5 | 150 | 37.0% | 5.8% | 5.6% | 5.8% | 1.0% | 0.0% | 5.1% | 1.8% | 3.8% | 5.0% | 13.0% | 8.0% | 4.1% | 4.0% |
| K2O | 68 | 14.3% | 2.9% | 2.9% | 2.9% | 1.4% | 0.0% | 8.6% | 1.4% | 7.0% | 7.0% | 28.0% | 17.0% | 3.3% | 3.3% |
| N+P+K | 1 147 | 32.6% | 6.0% | 4.7% | 6.4% | 0.3% | 0.0% | 3.3% | 1.3% | 3.4% | 4.3% | 16.3% | 11.0% | 5.3% | 5.3% |

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|  | | | **CEREALS** | | | | **OILSEEDS** | | |  | | | **FRUITS/VEG** | |  | |
| Wheat | Rice | Maize | Oth Ce | Soy | Palm | Oth OS | Fibre | Sugar | R&T | Fruits | Veg | Grass | Residual |
|  | | Total (kt) | % | % | % | % | % | % | % | % | % | % | % | % | % | % |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Japan | N | 396 | 9.3% | 29.0% | 0.0% | 0.5% | 1.2% | 0.0% | 0.0% | 0.0% | 3.8% | 5.4% | 11.4% | 19.2% | 4.8% | 15.4% |
|  | P2O5 | 359 | 9.7% | 32.1% | 0.0% | 1.3% | 3.1% | 0.0% | 0.0% | 0.0% | 3.8% | 8.0% | 6.4% | 19.3% | 4.6% | 11.7% |
| K2O | 283 | 7.7% | 30.9% | 0.0% | 1.2% | 3.2% | 0.0% | 0.0% | 0.0% | 2.7% | 6.7% | 8.9% | 20.5% | 5.3% | 12.9% |
| N+P+K | 1 037 | 9.0% | 30.6% | 0.0% | 0.9% | 2.4% | 0.0% | 0.0% | 0.0% | 3.5% | 6.7% | 9.0% | 19.6% | 4.9% | 13.4% |
| Philippines | N | 636 | 0.0% | 53.0% | 21.0% | 0.0% | 0.0% | 0.5% | 2.0% | 0.0% | 7.0% | 0.7% | 9.0% | 1.0% | 0.0% | 5.8% |
|  | P2O5 | 132 | 0.0% | 54.0% | 15.0% | 0.0% | 0.0% | 1.5% | 0.0% | 0.0% | 10.0% | 2.2% | 11.0% | 2.0% | 0.0% | 4.3% |
| K2O | 163 | 0.0% | 30.0% | 7.0% | 0.0% | 0.0% | 3.0% | 15.0% | 0.0% | 13.0% | 1.3% | 25.0% | 2.0% | 0.0% | 3.7% |
| N+P+K | 931 | 0.0% | 49.1% | 17.7% | 0.0% | 0.0% | 1.1% | 4.0% | 0.0% | 8.5% | 1.0% | 12.1% | 1.3% | 0.0% | 5.2% |
| New-Zealand | N | 428 | 2.0% | 0.0% | 1.0% | 2.0% | 0.0% | 0.0% | 0.1% | 0.2% | 0.0% | 0.4% | 2.5% | 2.0% | 89.7% | 0.1% |
|  | P2O5 | 357 | 2.0% | 0.0% | 1.0% | 2.0% | 0.0% | 0.0% | 0.1% | 0.2% | 0.0% | 0.4% | 2.5% | 2.0% | 89.5% | 0.3% |
| K2O | 132 | 2.0% | 0.0% | 1.0% | 2.0% | 0.0% | 0.0% | 0.1% | 0.2% | 0.0% | 1.2% | 5.0% | 4.0% | 84.2% | 0.3% |
| N+P+K | 917 | 2.0% | 0.0% | 1.0% | 2.0% | 0.0% | 0.0% | 0.1% | 0.2% | 0.0% | 0.5% | 2.9% | 2.3% | 88.8% | 0.2% |
| South Africa | N | 437 | 4.7% | 0.0% | 61.3% | 1.7% | 1.1% | 0.0% | 2.8% | 0.2% | 7.3% | 2.9% | 6.1% | 4.4% | 5.4% | 2.1% |
|  | P2O5 | 193 | 4.6% | 0.0% | 48.8% | 1.9% | 4.3% | 0.0% | 6.5% | 0.2% | 9.2% | 4.7% | 4.7% | 5.0% | 6.9% | 3.4% |
| K2O | 128 | 1.3% | 0.0% | 14.8% | 0.7% | 3.7% | 0.0% | 2.7% | 0.2% | 36.5% | 6.0% | 18.3% | 9.2% | 3.8% | 2.8% |
| N+P+K | 758 | 4.1% | 0.0% | 50.2% | 1.6% | 2.3% | 0.0% | 3.7% | 0.2% | 12.7% | 3.9% | 7.8% | 5.4% | 5.5% | 2.5% |
| Uzbekistan | N | 570 | 33.0% | 1.2% | 1.1% | 1.8% | 0.0% | 0.0% | 1.1% | 42.0% | 0.0% | 1.2% | 6.0% | 6.0% | 2.0% | 4.6% |
|  | P2O5 | 120 | 32.0% | 1.5% | 1.2% | 1.8% | 0.0% | 0.0% | 0.9% | 40.0% | 0.0% | 2.9% | 6.0% | 7.0% | 2.0% | 4.7% |
| K2O | 25 | 15.0% | 10.0% | 2.5% | 1.5% | 0.0% | 0.0% | 0.8% | 55.0% | 0.0% | 2.0% | 2.0% | 7.5% | 1.5% | 2.2% |
| N+P+K | 715 | 32.2% | 1.6% | 1.2% | 1.8% | 0.0% | 0.0% | 1.1% | 42.1% | 0.0% | 1.5% | 5.9% | 6.2% | 2.0% | 4.5% |
| Morocco | N | 225 | 39.0% | 0.2% | 4.3% | 15.5% | 0.0% | 0.0% | 3.0% | 0.0% | 4.0% | 2.5% | 15.5% | 10.5% | 0.0% | 5.5% |
|  | P2O5 | 217 | 38.0% | 0.1% | 3.6% | 12.5% | 0.0% | 0.0% | 4.0% | 0.0% | 3.5% | 3.0% | 16.0% | 12.0% | 0.0% | 7.3% |
| K2O | 29 | 17.0% | 0.1% | 1.2% | 4.0% | 0.0% | 0.0% | 3.0% | 0.0% | 5.0% | 5.0% | 44.0% | 19.0% | 0.0% | 1.8% |
| N+P+K | 471 | 37.2% | 0.2% | 3.8% | 13.4% | 0.0% | 0.0% | 3.5% | 0.0% | 3.8% | 2.9% | 17.5% | 11.7% | 0.0% | 6.1% |
| Chile | N | 193 | 19.0% | 0.8% | 13.0% | 6.6% | 0.0% | 0.0% | 0.8% | 0.2% | 1.3% | 3.0% | 17.0% | 3.4% | 20.0% | 15.0% |
|  | P2O5 | 129 | 18.0% | 1.2% | 6.7% | 6.7% | 0.0% | 0.0% | 0.6% | 0.2% | 1.2% | 7.0% | 8.0% | 3.0% | 32.4% | 15.0% |
| K2O | 101 | 6.0% | 2.4% | 8.3% | 2.4% | 0.0% | 0.0% | 1.2% | 0.2% | 4.5% | 9.0% | 36.0% | 8.0% | 15.0% | 7.0% |
| N+P+K | 423 | 15.6% | 1.3% | 10.0% | 5.6% | 0.0% | 0.0% | 0.8% | 0.2% | 2.0% | 5.6% | 18.8% | 4.4% | 22.6% | 13.1% |

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|  | | | **CEREALS** | | | | **OILSEEDS** | | |  | | | **FRUITS/VEG** | |  | |
| Wheat | Rice | Maize | Oth Ce | Soy | Palm | Oth OS | Fibre | Sugar | R&T | Fruits | Veg | Grass | Residual |
|  | | Total (kt) | % | % | % | % | % | % | % | % | % | % | % | % | % | % |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| *ROW* | N | 6 520 | 11.7% | 15.1% | 15.0% | 5.8% | 0.6% | 2.2% | 4.9% | 5.0% | 5.4% | 3.2% | 9.5% | 13.9% | 0.0% | 7.7% |
|  | P2O5 | 2 365 | 9.1% | 14.2% | 12.8% | 6.2% | 5.9% | 3.0% | 5.3% | 5.5% | 7.1% | 2.9% | 9.6% | 16.2% | 0.0% | 2.2% |
| K2O | 1 954 | 3.6% | 13.0% | 9.7% | 2.0% | 3.8% | 9.8% | 2.7% | 3.0% | 13.0% | 3.1% | 10.4% | 17.0% | 0.0% | 8.9% |
| N+P+K | 10 839 | 9.7% | 14.5% | 13.6% | 5.2% | 2.3% | 3.7% | 4.6% | 4.7% | 7.1% | 3.1% | 9.7% | 15.0% | 0.0% | 6.7% |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| **World** | N | 102 496 | 18.2% | 15.2% | 17.8% | 4.7% | 1.1% | 1.4% | 5.3% | 4.1% | 3.6% | 2.1% | 6.1% | 7.4% | 4.7% | 8.3% |
|  | P2O5 | 45 933 | 14.6% | 12.5% | 13.9% | 3.6% | 9.7% | 1.9% | 4.5% | 3.8% | 3.6% | 2.5% | 8.8% | 9.9% | 4.0% | 6.7% |
| K2O | 33 520 | 7.4% | 11.0% | 14.2% | 2.7% | 12.3% | 8.0% | 2.8% | 2.4% | 6.3% | 2.5% | 8.5% | 10.6% | 3.8% | 7.6% |
| N+P+K | 181 949 | 15.3% | 13.7% | 16.2% | 4.0% | 5.4% | 2.7% | 4.6% | 3.7% | 4.1% | 2.3% | 7.2% | 8.6% | 4.3% | 7.8% |

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| ‘Oth Ce’ = other cereals | ‘Oth OS’ = other oilseeds | ‘Grass’ = grassland |
| ‘Soy’ = soybean | ‘R&T’ = roots & tubers | ‘Oth Cr’ = other crops |
| ‘Palm’ = oil palm | ‘Veg’ = vegetables | ‘ROW’ = rest of the world |



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