

Participatory Small-Scale Irrigation Development Program
Phase II (PASIDP-II)

Fruit Suitability Map for PASIDP II Irrigation Schemes - Input for
Scaling

Gizachew Legesse –Geospatial Science & Agronomy

Birhanu Biazin- Research Project Coordinator, Irrigation Agronomist

Gebeyaw Tilahun-Technical PASIDP II Project Coordinator

December 2022



Introduction

The International Crops Research for the Semi-Arid Tropics (ICRISAT) with integration of MOA-PASIDP-II has prepared fruit suitability maps. As part of the proper identification and demonstration of climate-resilient, nutritious, and economically viable germplasm across the irrigation schemes, we have been undergoing fruit suitability mapping for the entire Ethiopia. A consortium of 9 senior and 6 medium-level experts, who have ample experience in fruit agronomy, have participated in setting up agroecological requirements for each of the four fruits (Apple, Avocado, Mango, and banana) considered. Therefore, altitude, daily minimum and maximum temperature, precipitation amount, growing length, soil texture, Soil PH, and access to irrigation water were the main criteria that have got different weights and scores for different types of fruits as indexed by the experts. Hence, the GIS/Remote sensing layers for these criteria were collected and subjected to the algorithm/model for mapping. We set three classes of suitability (highly suitable, moderately suitable, and not suitable). Based on the suitability map it is possible to start immediately the introduction of fruit germplasm in highly suitable areas. However, further testing and evaluation with small-scale introduction may be needed for those schemes which are moderately suitable before wider dissemination. To ensure the quality of the maps, we have tried to calibrate the algorithm/model and validated that with at least 20 sites where there are fruit orchards. Some examples for highly suitable areas are mentioned below.

- ✓ For Avocado, we took highly suitable areas such as Mizan teferi, Yirgalem in Sidama, Humbo, Mecha/Koga areas, Wukro, etc.
- ✓ For apples, we took highly suitable areas such as Chench, Debre Berhan, Hagereselam in Sidama, Legambo, Astbi Wemberta, etc.
- ✓ For irrigated banana, we took highly suitable areas such as Arbaminch, Mirab Abaya, Metema areas, etc.

Fruit suitability maps

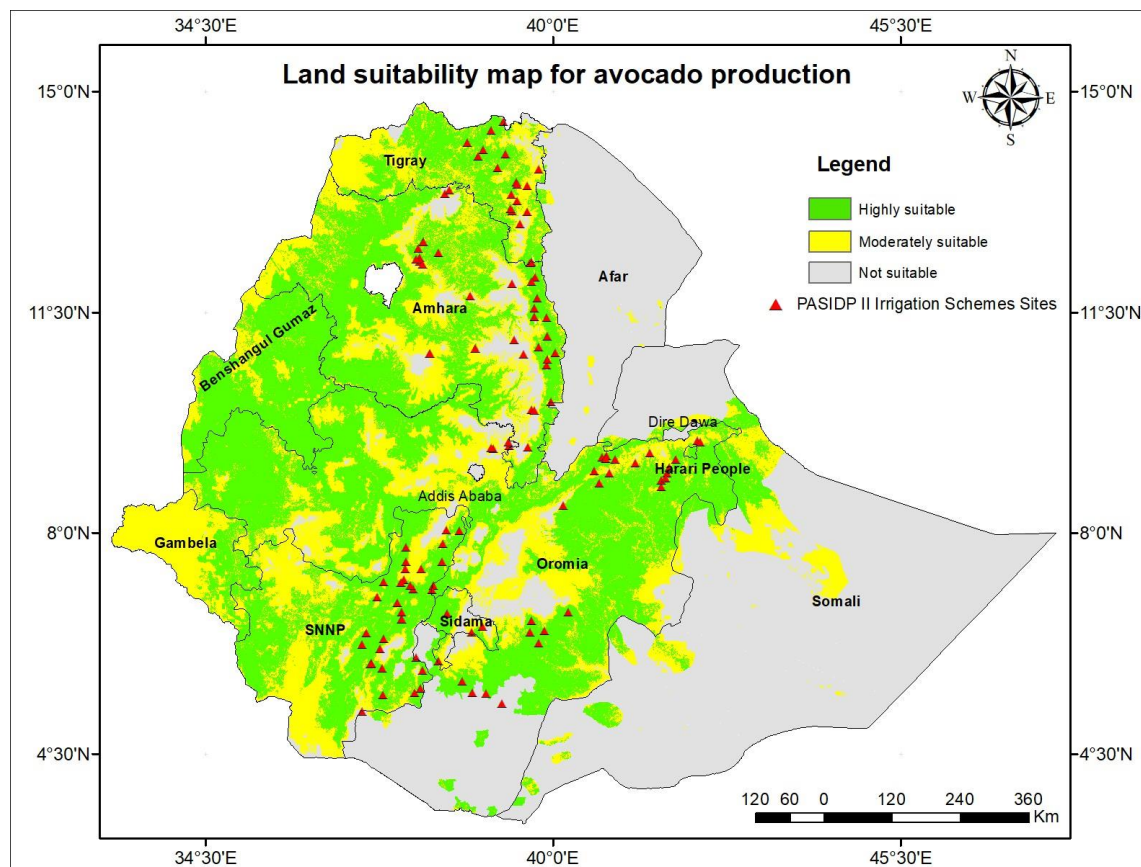


Figure 1. Avocado suitability map for the entire Ethiopia and the PASIDP II irrigation schemes overlaid

Table 1. Area coverage and percentage of different suitability classes (highly suitable, moderately suitable and unsuitable) for avocado cultivation by regions in Ethiopia

| Regions | Percent coverage by land suitability classes | | | Total area (ha) |
|------------------|--|-------------------------|------------------------|--------------------|
| | Highly suitable | Moderately suitable | Not suitable | |
| Amhara | 8,044,868 (52%) | 5569524 (36%) | 1856508 (12%) | 15,470,900 |
| Oromia | 14,226,900 (50%) | 7397988 (26%) | 6828912 (24%) | 28,453,800 |
| Tigray | 2,403,792 (48%) | 2303634 (46%) | 300474 (6%) | 5,007,900 |
| SNNP | 5,065,200 (54%) | 3752000 (40%) | 562800 (6%) | 9,380,000 |
| Sidama | 564,000 (47%) | 396,000 (33%) | 252,000 (21%) | 1,200,000 |
| Benshangul Gumaz | 4,208,017 (83%) | 861883 (17%) | 0 | 5,069,900 |
| Gambella | 804141 (27%) | 2144376 (72%) | 29783 (1%) | 2,978,300 |
| Somali | 1396260 (5%) | 2234016 (8%) | 24294924(87%) | 27,925,200 |
| Afar | 72053 (1%) | 144106 (2%) | 6989141 (97%) | 7,205,300 |
| Hareri | 26386 (79%) | 7014 (21%) | 0 | 33,400 |
| Total | 39,037,810 (38%) | 26,278,054 (26%) | 47,396,926(46%) | 102,724,700 |

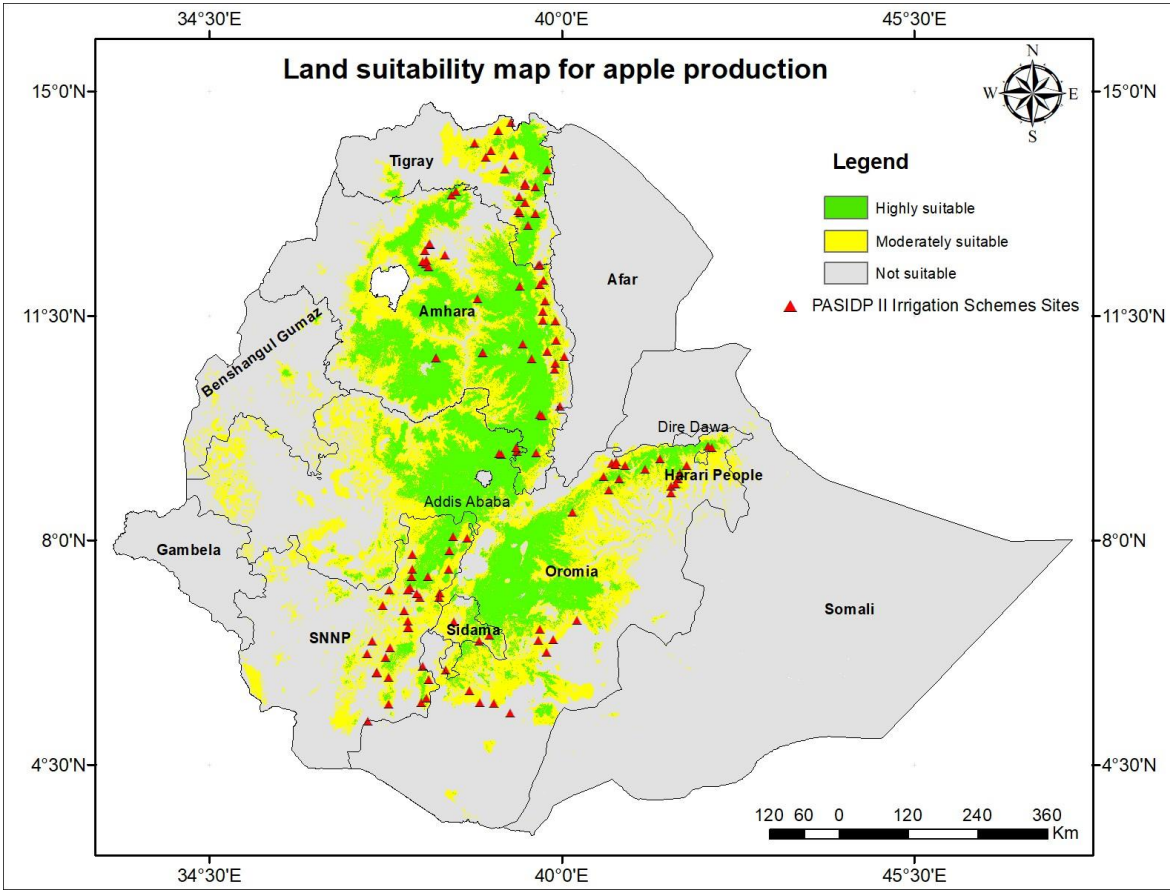


Figure 2. Apple suitability map for the entire Ethiopia and the PASIDP II irrigation schemes overlaid on it

Table 2. Area coverage and percentage of different suitability classes (highly suitable, moderately suitable and unsuitable) for Apple cultivation by regions in Ethiopia

| Region | Area coverage by land suitability classes (ha) | | | Total area (ha) |
|------------------------|--|-----------------------|-----------------------|------------------|
| | Highly suitable | Moderately suitable | Not suitable | |
| Amhara | 4299605 (28%) | 4173227 (27%) | 6998068 (45%) | 15470900 |
| Oromia | 3476809 (12%) | 5654233 (20%) | 19322758 (68%) | 28453800 |
| Tigray | 516853 (10%) | 777259 (16%) | 3713788 (74%) | 5007900 |
| SNNP | 339753 (4%) | 1424273 (15%) | 7615975 (81%) | 9380000 |
| Sidama | 68556 (6%) | 614592 (51%) | 516850 (43%) | 1200000 |
| Benshangul Gumaz | 7935 (0%) | 59010 (1%) | 5002954 (99%) | 5069900 |
| Gambella | 0 (0%) | 122 (0%) | 2978178 (100%) | 2978300 |
| Somali | 353 (0%) | 19708 (0%) | 27905139 (100%) | 27925200 |
| Afar | 167 (0%) | 11630 (0%) | 7193503 (100%) | 7205300 |
| Harari | 964 (3%) | 8397 (25%) | 24040 (72%) | 33400 |
| Total area (ha) | 8,710,994 (9%) | 12742452 (12%) | 81271254 (79%) | 102724700 |

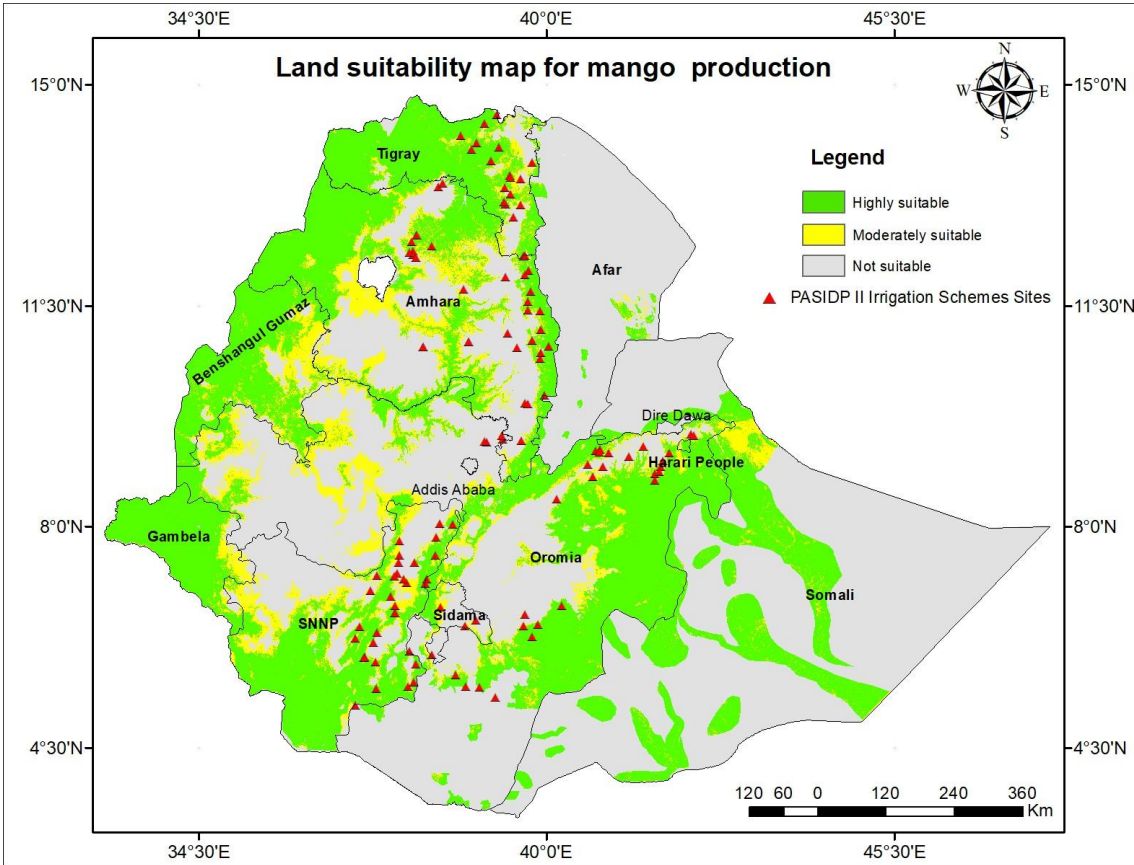


Figure 3. Mango suitability map for the entire Ethiopia and the PASIDP II irrigation schemes overlaid on it

Table 3. Area coverage and percentage of different suitability classes (highly suitable, moderately suitable and unsuitable) for mango cultivation by regions in Ethiopia

| Regions | Area coverage by land suitability classes (ha) | | | Total area (ha) |
|------------------|--|-----------------------|----------------------|--------------------|
| | Highly suitable | Moderately suitable | Not suitable | |
| Amhara | 6211255 (40%) | 3071437 (20%) | 6188209 (40%) | 15470900 |
| Oromia | 9189348 (32%) | 3329597 (12%) | 15934855 (56%) | 28453800 |
| Tigray | 3704729 (74%) | 577467 (12%) | 725704 (14%) | 5007900 |
| SNNP | 4439901 (47%) | 1615496 (17%) | 3324603 (35%) | 9380000 |
| Sidama | 243148 (20%) | 240675 (20%) | 716177 (60%) | 1200000 |
| Benshangul Gumaz | 3619405 (71%) | 1038359 (20%) | 412136 (8%) | 5069900 |
| Gambella | 2507148 (20%) | 298847 (20%) | 172305 (60%) | 2978300 |
| Somali | 6588485 (24%) | 644674 (2%) | 20692040 (74%) | 27925200 |
| Afar | 277063 (4%) | 72476 (1%) | 6855761 (95%) | 7205300 |
| Harari | 22916 (69%) | 6243 (19%) | 4241 (12%) | 33400 |
| Total | 36,803,398 (36%) | 10895271 (11%) | 55026031(53%) | 102,724,700 |

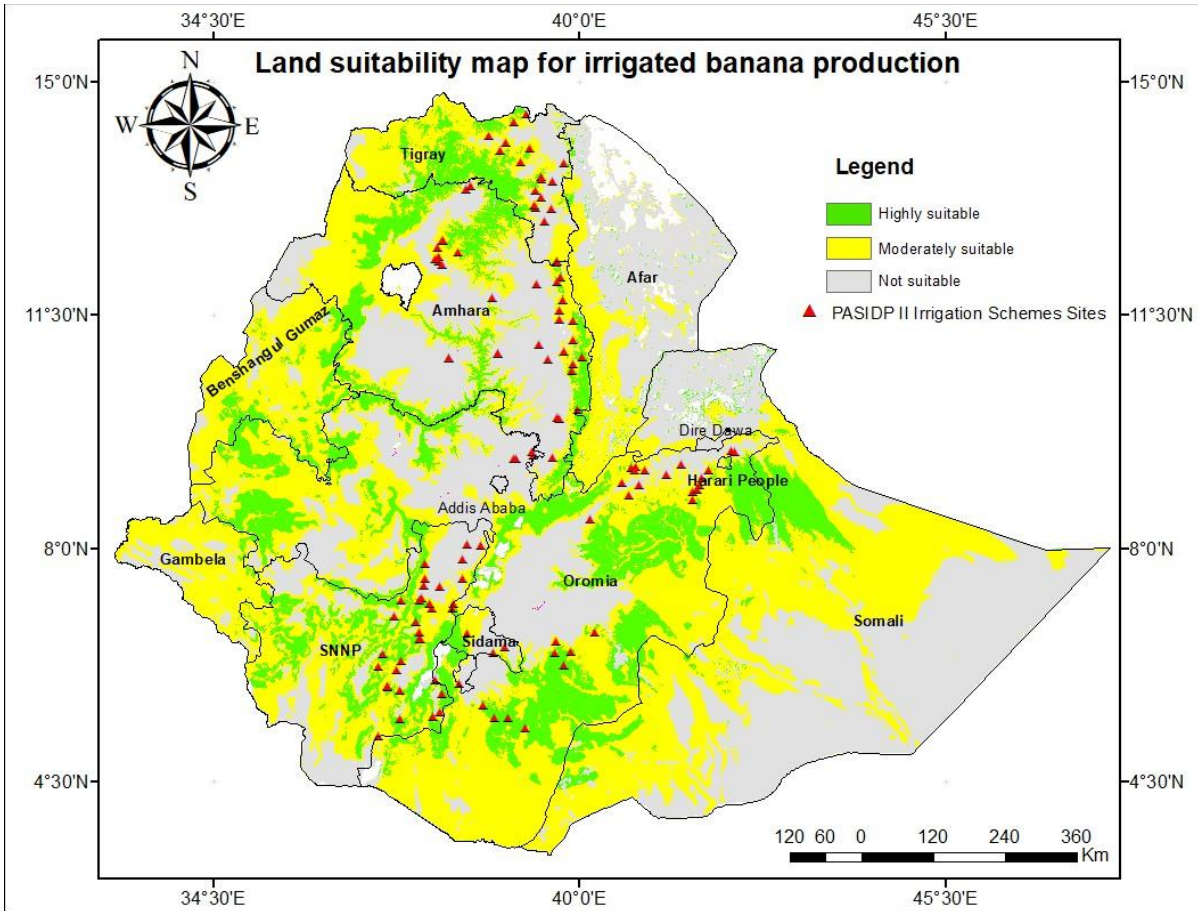


Figure 4. Irrigated banana spatial suitability map for the entire Ethiopia and the PASIDP II irrigation schemes overlaid on it

Table 4. Area coverage and percentage of different suitability classes (highly suitable, moderately suitable and unsuitable) for irrigated banana cultivation by regions in Ethiopia

| Regions | Area coverage by land suitability classes (ha) | | | Total Area (ha) |
|------------------|--|--------------------------|-----------------------|------------------|
| | Highly suitable (S1) | Moderately suitable (S2) | Not suitable (S3) | |
| Amhara | 2485821 (16%) | 6780178 (44%) | 6204902 (40%) | 15470901 |
| Oromia | 8199079 (29%) | 15442365 (54%) | 4812356 (17%) | 28453800 |
| Tigray | 743943 (15%) | 3456754 (69%) | 807204 (16%) | 5007901 |
| SNNP | 2439796 (26%) | 5458521 (58%) | 1481684 (16%) | 9380000 |
| Sidama | 263760 (22%) | 840632 (70%) | 95608 (8%) | 1200000 |
| Benshangul Gumaz | 1038017 (20%) | 3710552 (73%) | 321331 (6%) | 5069900 |
| Gambella | 171552 (6%) | 2740881 (92%) | 65866 (2%) | 2978299 |
| Somali | 1651015 (6%) | 15995130 (57%) | 10279055 (37%) | 27925200 |
| Afar | 95698 (1%) | 1964944 (27%) | 5144658 (71%) | 7205299 |
| Hareri | 4131 (12%) | 20806 (62%) | 8463 (26%) | 33401 |
| Total | 17092812 (17%) | 56410762 (55%) | 29221126 (28%) | 102724701 |

Table 5: Land suitability classification for tropical and temperate fruit crops by scheme

| S/N | Region | Zone | Woreda | Kebele | Scheme Name | Elevation (m) | Land suitability for fruit crops (Highly suitable, moderately suitable and not suitable) | | | |
|-----|------------------|---------|--------------------|---------------------|---------------|---------------|--|-------|--------|-------|
| | | | | | | | Avocado | Mango | Banana | Apple |
| 1 | Central Ethiopia | Gurage | Meskan | Mikaelo | Goche jib | 2382 | MS | NS | NS | HS |
| 2 | Central Ethiopia | Gurage | Mareko | Dida Halibo | Halibo | 1920 | HS | HS | NS | NS |
| 3 | Central Ethiopia | Silte | Lanfuro | Shanka Tufa | Meded kusiya | 2062 | HS | MS | NS | MS |
| 4 | Central Ethiopia | Hadiya | Gibe | Megacho | Bisho | 1745 | HS | MS | MS | NS |
| 5 | Central Ethiopia | Hadiya | Gombora | Habichona Adiyana | Gombora | 1909 | HS | NS | MS | NS |
| 6 | Central Ethiopia | Halaba | Dijo Weira | Simbita | Simbita | 1854 | HS | HS | MS | NS |
| 7 | Central Ethiopia | Hadiya | Soro | Harche | Ajacho | 2110 | MS | NS | NS | MS |
| 8 | Central Ethiopia | KT | Shashego & Angacha | Bidika & Adancho | Guder | 2089 | HS | MS | NS | NS |
| 9 | Central Ethiopia | KT | Hadero Tunto | Gelbena Tunto | Gomboloza | 1810 | HS | NS | MS | NS |
| 10 | South Ethiopia | Dawero | Gena bosa | Bazakoysa | Gota | 2067 | HS | NS | MS | NS |
| 11 | Central Ethiopia | KT | Tembaro | Belela | Gordena | 1615 | HS | MS | HS | NS |
| 12 | Central Ethiopia | KT | Kacha bira | Walana | Dinka | 1744 | HS | MS | MS | NS |
| 13 | Central Ethiopia | Hadiya | West Badewacho | Hawera | Shapa | 1828 | HS | MS | MS | NS |
| 14 | South Ethiopia | Dawero | Loma | Gendo walcha | Toni | 1997 | MS | NS | MS | NS |
| 15 | South Ethiopia | Wolaita | Kindo koysa | Molticho | Baliya | 1325 | HS | HS | HS | NS |
| 16 | South Ethiopia | Wolaita | Offa | Dekeya | Menisa | 1650 | HS | MS | MS | NS |
| 17 | Sidama | Sidama | Lock abaya | Chalbesa | Chancho | 1723 | HS | MS | MS | NS |
| 18 | South Ethiopia | Wolaita | Humbo | Bala | Lintala | 1351 | HS | HS | MS | NS |
| 19 | South Ethiopia | Wolaita | Offa | Mancha | Mancha | 1335 | HS | HS | MS | NS |
| 20 | Sidama | Sidama | Bensa | segers and Denbi | Seger adilo | 2132 | MS | NS | NS | MS |
| 21 | Sidama | Sidama | Bona zuriya | Awoyeodola | Awaye nemicha | 2168 | MS | NS | NS | MS |
| 22 | South Ethiopia | Goffa | Denba gofa | Docha Dembele | Koshere | 1254 | HS | HS | HS | NS |
| 23 | South Ethiopia | Gamo | Deramalo | Doema | Zege | 1236 | HS | HS | HS | NS |
| 24 | South Ethiopia | Goffa | Zala | Gebila | Sosa | 1535 | HS | MS | HS | NS |
| 25 | South Ethiopia | Gamo | Kemba | Dingamo &Garsa Anko | Chiye | 1726 | HS | NS | MS | NS |
| 26 | South Ethiopia | Gedeo | Koshere | Anchabi | Melka Halake | 1965 | HS | MS | NS | NS |
| 27 | South Ethiopia | Gamo | Kemba | Garsagarda | Worza | 1193 | HS | HS | HS | NS |
| 28 | South Ethiopia | Gamo | Kemba | Marta Laysa | Bolola | 1488 | HS | HS | HS | NS |
| 29 | South Ethiopia | Gamo | Gerese | Kemba | Otora | 1662 | HS | HS | HS | NS |
| 30 | South Ethiopia | Segen | Amaro | Kele | Kele bawaye | 1519 | HS | HS | HS | NS |
| 31 | South Ethiopia | Segen | Burji | Goche | Argada | 1781 | HS | HS | MS | NS |
| 32 | South Ethiopia | Segen | Burji | Dalo | Segen dalo | 1969 | MS | NS | NS | MS |
| 33 | South Ethiopia | Segen | Karate zuria | Getabona arfayde | Delbena | 1529 | HS | HS | HS | NS |
| 34 | Tigray | Central | Ahferom | Hoyya-Medeb | Daero(Belesa) | 1621 | HS | HS | NS | NS |
| 35 | Tigray | Central | Mereb-leke | Haftom | Mai-tsahlo | 1835 | HS | HS | MS | NS |
| 36 | Tigray | Central | T/maichew | Wuhdt | Baekel | 1727 | HS | HS | MS | NS |
| 37 | Tigray | Central | Adwa | Adisalem | Mai-auso | 1807 | HS | HS | MS | NS |
| 38 | Tigray | Central | Werileke | Adi-hedem | Ruba chimiti | 1717 | HS | HS | MS | NS |
| 39 | Tigray | Central | Naeder Adet | | Mai tsedino | 1954 | HS | HS | MS | NS |
| 40 | Tigray | Central | K/temben | Wuhdet | Midmar | 1684 | MS | HS | MS | NS |
| 41 | Tigray | Eastern | Atsbiwenberta | | Gereb amatsi | 2349 | MS | NS | NS | HS |

| S/N | Region | Zone | Woreda | Kebele | Scheme Name | Elevation (m) | Land suitability for fruit crops (Highly suitable, moderately suitable and not suitable) | | | |
|-----|--------|----------------|--------------------|----------------------------|--------------------|---------------|--|-------|--------|-------|
| | | | | | | | Avocado | Mango | Banana | Apple |
| 42 | Tigray | South Eastern | Enderta | Mahbere-genet | Misrar Teli | 1887 | HS | HS | MS | NS |
| 43 | Tigray | South Eastern | Enderta | Mai-Alem | Mariam Debregelila | 2015 | HS | HS | MS | NS |
| 44 | Tigray | South Eastern | Enderta | Arato | Gereb-da-giorgis | 2264 | MS | NS | NS | MS |
| 45 | Tigray | South Eastern | H/wajrat | Metekel | Gereb-maitsedo | 2161 | HS | HS | MS | MS |
| 46 | Tigray | South Eastern | H/wajrat | Hintalo | Dagabir | 2094 | MS | MS | NS | MS |
| 47 | Tigray | South Eastern | S/Samre | | Zemara | 1662 | HS | HS | MS | NS |
| 48 | Tigray | South Eastern | H/wajrat | Muja | Gereb Fyaye | 1669 | HS | HS | MS | NS |
| 49 | Tigray | South Eastern | H/wajrat | | Gurangure | 2435 | MS | NS | NS | HS |
| 50 | Tigray | Southern | Emba-Alaje | Tekh'a | Adikerakiro | 2733 | MS | NS | NS | HS |
| 51 | Amhara | N/ Gonder | Tselemet | Ateba & Negadie Meshage | Ateba-2 | 2242 | MS | NS | NS | HS |
| 52 | Amhara | N/ Gonder | Tselemet | Adimihret | Ateba-1 | 3392 | NS | NS | NS | HS |
| 53 | Amhara | Central Gonder | Kinfaz | Tebtebita | Aderkayna | 1720 | HS | HS | MS | NS |
| 54 | Amhara | Central Gonder | Kinfaz | Filiklik | Ambo Wuha | 1686 | HS | HS | MS | NS |
| 55 | Amhara | Central Gonder | W/Belesa | Asuagary | Hota | 1828 | MS | MS | MS | NS |
| 56 | Amhara | Central Gonder | East Belesa | Goga | Bahir libo | 1669 | HS | HS | HS | NS |
| 57 | Amhara | Central Gonder | W/Belesa | Ashker Terara | Tena | 1818 | HS | HS | MS | NS |
| 58 | Amhara | Central Gonder | W/Belesa | Gulana | Gulana | 1937 | HS | HS | MS | MS |
| 59 | Amhara | Central Gonder | W/Belesa | Baja Ferfer | Agam Wuha | 1938 | HS | HS | MS | MS |
| 60 | Amhara | N/ Wollo | Raya Kobo | 05 (Hujera) | Gobu-4 | 1400 | MS | NS | MS | NS |
| 61 | Amhara | N/ Wollo | Raya Kobo | Jarota | Gobu-3 | 1435 | MS | HS | MS | NS |
| 62 | Amhara | Central Gonder | W/Belesa | Dawacho | Mena Dawucho | 2068 | HS | HS | MS | NS |
| 63 | Amhara | N/ Wollo | Raya Kobo | Afaf | Golina-II | 1358 | HS | HS | MS | MS |
| 64 | Amhara | N/ Wollo | Raya Kobo | Robit | Amid | 1546 | MS | MS | HS | NS |
| 65 | Amhara | Oromo | Artuma furi | Chibina | Eyela-2 | 2935 | NS | NS | NS | HS |
| 66 | Amhara | N/ wollo | Mekit | maserote | Shema Matebia | 2016 | HS | MS | NS | MS |
| 67 | Amhara | N/Wollo | Habru | Gola Halo | Cheretiy#2 | 1801 | HS | HS | MS | MS |
| 68 | Amhara | N/wollo | Habru | Girana | Sedyni | 1499 | HS | HS | MS | MS |
| 69 | Amhara | S/Wollo | Tehuledere | 17 kebele | Burka | 1636 | HS | MS | MS | NS |
| 70 | Amhara | N/ wollo | Gidan | 12/Challi | Challi | 1461 | HS | HS | MS | MS |
| 71 | Amhara | Oromo | Dawachefa | Abicho | Cheleka | 1543 | HS | HS | MS | MS |
| 72 | Amhara | S/wollo | Desie Zuria | 26 | Yejetie | 2670 | NS | NS | NS | HS |
| 73 | Amhara | S/Wollo | Kalu | 01 & 031 | Borkena Terefo | 1500 | HS | HS | MS | NS |
| 74 | Amhara | S/Wollo | Mehal Saint | Alegeta | Mayes2 | 2884 | NS | NS | NS | HS |
| 75 | Amhara | S/Wollo | Mehal Saint | Didin | Mayes 1 | 2884 | NS | NS | NS | HS |
| 76 | Amhara | S/Wollo | Dewe Harewa | Argoba | Sherif | 1117 | HS | HS | HS | NS |
| 77 | Amhara | E/Gojam | Goncha Siso Enesie | 3 | Azuwary-2 | 2596 | MS | NS | NS | HS |
| 78 | Amhara | E/Gojam | Goncha Siso Enesie | 09/Barjano | Azuwary-1 | 2596 | MS | NS | NS | HS |
| 79 | Amhara | S/wollo | Werababu | 017 dollo and 018 kulbi | Jeram | 3007 | NS | NS | NS | HS |
| 80 | Amhara | S/wollo | Woreillu | Didini | Workie | 1732 | HS | HS | MS | NS |
| 81 | Amhara | N/ wollo | Habru | Bishae Eideda | Borkena Saki | 1451 | MS | NS | HS | NS |
| 82 | Amhara | Oromo | Jilie Timuga | Balchi | Sewer #3 | 1130 | MS | HS | MS | NS |
| 83 | Amhara | N/ Shewa | Mojana Wodera | Feres Megalebiya &Zub Amba | Keskash | 2430 | MS | NS | NS | HS |

| S/N | Region | Zone | Woreda | Kebele | Scheme Name | Elevation (m) | Land suitability for fruit crops (Highly suitable, moderately suitable and not suitable) | | | |
|-----|--------|------------|---------------|---------------------|------------------|---------------|--|-------|--------|-------|
| | | | | | | | Avocado | Mango | Banana | Apple |
| 84 | Amhara | N/ Shewa | Mojana Wodera | Wodera | Awajo | 2524 | MS | NS | NS | HS |
| 85 | Amhara | N/ Shewa | Asagrt | Tamo | Amtu | 2316 | MS | NS | NS | MS |
| 86 | Oromia | E/ Harerge | Jarso | Burka Misoma | Langano | 2191 | MS | NS | NS | HS |
| 87 | Oromia | N/ Shewa | Kimbibit | Gimbi Kerensa | Lega Gimbi | 2772 | NS | NS | NS | HS |
| 88 | Oromia | E/ Harerge | Jarso | Badesa | Hidha Sombo | 2386 | MS | NS | NS | MS |
| 89 | Oromia | N/ Shewa | Kimbibit | Tiku Koruha | Koruha | 2876 | NS | NS | NS | HS |
| 90 | Oromia | N/ Shewa | Jida | Siba-Serti | Aletu | 2644 | NS | NS | NS | HS |
| 91 | Oromia | N/ Shewa | Jida | Nesir Godet | Kelatie | 2669 | MS | NS | NS | HS |
| 92 | Oromia | E/ Harerge | Meta | Kura Meta | Kura Meta | 1707 | MS | NS | MS | NS |
| 93 | Oromia | W/ Harerge | Miesso | Orfo & burimunless | Laku | 1447 | HS | HS | MS | NS |
| 94 | Oromia | W/ Harerge | Miesso | Husse Mender | Husse Mandhera | 1421 | HS | HS | MS | NS |
| 95 | Oromia | W/ Harerge | Miesso | Orpho & H/Adam | Laga Chiro | 1494 | HS | MS | MS | NS |
| 96 | Oromia | E/ Harerge | Kurfechele | Kurfechele Keb1 | Afrankello | 1488 | HS | HS | HS | NS |
| 97 | Oromia | W/ Harerge | Doba | Tokuma Mata Lencha | Waltane | 1827 | HS | MS | MS | NS |
| 98 | Oromia | E/ Harerge | Melka Belo | Misil | Misil | 2238 | MS | NS | NS | MS |
| 99 | Oromia | E/ Harerge | Gurawa | Oda Jeneta | Oda Jeneta | 2171 | MS | NS | NS | HS |
| 100 | Oromia | W/ Harerge | G/Bordode | Hara | Laga Arba | 1864 | HS | MS | MS | NS |
| 101 | Oromia | E/ Harerge | Gurawa | Karra Horda | Karra Horda | 1456 | HS | HS | MS | NS |
| 102 | Oromia | W/ Harerge | Gemichise | Melkam Walenso | Melka | 2294 | MS | NS | NS | HS |
| 103 | Oromia | E/ Harerge | Meyu Muluke | Huse/Aroji | Ifabas | 1408 | HS | HS | MS | NS |
| 104 | Oromia | E/ Harerge | Gola Oda | Hargeti & Tirtiro | Hargetti Tirtiro | 1277 | HS | HS | MS | NS |
| 105 | Oromia | W/ Harerge | Oda Bultum | Sakata#22 | Oda Racha | 1728 | HS | MS | MS | NS |
| 106 | Oromia | E/ Harerge | Gola Oda | Bereda Lencha | Bereda Lencha | 1172 | HS | HS | MS | NS |
| 107 | Oromia | Arsi | Shenan Kolu | Bahima-Harchuma | Lega Kolu | 1972 | HS | NS | MS | NS |
| 108 | Oromia | W/ Arsi | Sirraro | Damine Leman | Damin leman | 1704 | HS | HS | MS | NS |
| 109 | Oromia | W/ Arsi | Sirraro | Rophi Sinxa | Rophi Sinxa | 1641 | HS | HS | HS | NS |
| 110 | Oromia | Bale | Berbere | Cheketa | Ledi Chekata | 1140 | HS | HS | MS | NS |
| 111 | Oromia | Bale | Harena Buluk | Adeyi | Adeyi | 1767 | HS | NS | MS | NS |
| 112 | Oromia | Bale | D/Mena | Hirba | Hirpa Giristu | 1344 | HS | HS | HS | NS |
| 113 | Oromia | Bale | Harena Buluk | Sodu Welmal & Anole | Welmel Tika | 1527 | HS | MS | HS | NS |
| 114 | Oromia | Bale | D/Mena | Melka Amana | Welmel | 1149 | HS | HS | HS | NS |

HS: Highly suitable; MS: Moderately suitable; NS: Not suitable