**Supplementary Table S2** Overview of imputation accuracies and allele imputation error rate (AIER) for imputation of 50k genotypes in livestock species other than dairy cattle.

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Meas1 | Species | Reference | Imputation2 | Breed / Strain | Population | | Low density panel | | | | | | |
|  |  |  |  |  | Ref. | Val. | 384/450 | 741 | 1000 | 1468 | 3k3 | 5k | 6k/7k4 |
| Acc. | Beef | [Dassonneville *et al.* (2012)](file:///D:\USERDATA\paper\imputation_accuracy_review\Table_5.xlsx#RANGE!_ENREF_11) | Beagle | Blonde d'Aquitaine | 754 | 237 | . | . | . | . | 0.88 | . | 0.92 |
|  | cattle | [Sun *et al.* (2012)](file:///D:\USERDATA\paper\imputation_accuracy_review\Table_5.xlsx#RANGE!_ENREF_46) | Beagle | Angus | 2,281 | 777 | . | . | . | . | . | . | . |
|  |  | [Huang *et al.* (2012b)](file:///D:\USERDATA\paper\imputation_accuracy_review\Table_5.xlsx#RANGE!_ENREF_31) | DagPHASE | Hereford (L1) | 183 | 57 | . | . | . | . | 0.97 | . | . |
|  |  |  | DagPHASE | Hereford (AHA) | 249 | 62 | . | . | . | . | 0.84 | . | . |
|  |  | Berry *et al.* ([2014](#_ENREF_4)) | Beagle | Aberdeen Angus | 2,4246 | 74 | . | . | . | . | . | . | 0.94 |
|  |  |  |  | Belgian Blue | 2,424 | 56 | . | . | . | . | . | . | 0.93 |
|  |  |  |  | Charolais | 2,424 | 184 | . | . | . | . | . | . | 0.95 |
|  |  |  |  | Hereford | 2,424 | 45 | . | . | . | . | . | . | 0.95 |
|  |  |  |  | Limousin | 2,424 | 224 | . | . | . | . | . | . | 0.94 |
|  |  |  |  | Simmental | 2,424 | 84 | . | . | . | . | . | . | 0.93 |
|  | Pigs | [Huang *et al.* (2012a)](file:///D:\USERDATA\paper\imputation_accuracy_review\Table_5.xlsx#RANGE!_ENREF_30) | AlphaImpute | NA5 | 2,699 | 98 | 0.94 | . | . | . | 0.97 | . | 0.98 |
|  |  | [Wellman *et al.* (2013)](file:///D:\USERDATA\paper\imputation_accuracy_review\Table_5.xlsx#RANGE!_ENREF_56) | Beagle | Pietrain | 795 | 100 | 0.89 | 0.93 | . | 0.95 | 0.98 | . | . |
|  |  | [Duarte *et al.* (2013)](file:///D:\USERDATA\paper\imputation_accuracy_review\Table_5.xlsx#RANGE!_ENREF_15) | Merlin | Duroc x Pietrain | 399 | 932 | . | . | . | 0.96 | 0.97 | . | 0.98 |
|  |  | Badke *et al.* (2014) | Beagle | Yorkshire | 64 | 900 | . | . | . | . | . | . | 0.94 |
|  |  |  |  | Yorkshire | 900 | 900 | . | . | . | . | . | . | 0.97 |
|  | Broilers | Wang *et al.* ([2013](#_ENREF_57)) | Habier 2009 | Female line | 1,091 | 160 | 0.94 | 0.97 | . | . | . | . | . |
|  |  | [Hickey&Kranis (2013)](file:///D:\USERDATA\paper\imputation_accuracy_review\Table_5.xlsx#RANGE!_ENREF_24) | AlphaImpute | NA5 | 1,017 | 164 | 0.95 | . | . | . | . | . | . |
| AIER | Beef | [Dassonneville *et al.* (2012)](file:///D:\USERDATA\paper\imputation_accuracy_review\Table_5.xlsx#RANGE!_ENREF_11) | Beagle | Blonde d'Aquitaine | 754 | 237 | . | . | . | . | 4.8 | . | 2.5 |
|  | cattle | [Sun *et al.* (2012)](file:///D:\USERDATA\paper\imputation_accuracy_review\Table_5.xlsx#RANGE!_ENREF_46) | Beagle | Angus | 2,281 | 777 | . | . | . | . | . | . | 1.1 |
|  |  |  | IMPUTE2 | Angus | 2,281 | 777 | . | . | . | . | . | . | 4.2 |
|  |  |  | fastPHASE | Angus | 2,281 | 777 | . | . | . | . | . | . | 4.9 |
|  |  |  | Findhap | Angus | 2,281 | 777 | . | . | . | . | . | . | 2.7 |
|  |  |  | AlphaImpute | Angus | 2,281 | 777 | . | . | . | . | . | . | 5.3 |
|  |  |  | Fimpute | Angus | 2,281 | 777 | . | . | . | . | . | . | 1.6 |
|  |  | [Wang *et al.* (2012)](file:///D:\USERDATA\paper\imputation_accuracy_review\Table_5.xlsx#RANGE!_ENREF_53) | fastPHASE | Angus | 22 | 2,224 | . | . | . | . | 9.9 | . | . |
|  |  |  | fastPHASE | Angus | 225 | 2,021 | . | . | . | . | 7.7 | . | . |
|  |  |  | fastPHASE | Angus | 449 | 1,797 | . | . | . | . | 6.5 | . | . |
|  |  |  | fastPHASE | Angus | 1,123 | 1,123 | . | . | . | . | 6.4 | . | . |
|  |  | Berry *et al.* ([2014](#_ENREF_4)) | Beagle | Aberdeen Angus | 2,424 | 74 | . | . | . | . | . | . | 3.9 |
|  |  |  |  | Belgian Blue | 2,424 | 56 | . | . | . | . | . | . | 4.6 |
|  |  |  |  | Charolais | 2,424 | 184 | . | . | . | . | . | . | 3.2 |
|  |  |  |  | Hereford | 2,424 | 45 | . | . | . | . | . | . | 3.4 |
|  |  |  |  | Limousin | 2,424 | 224 | . | . | . | . | . | . | 3.8 |
|  |  |  |  | Simmental | 2,424 | 84 | . | . | . | . | . | . | 4.9 |
|  |  | Ventura *et al.* (2014) | Beagle | Angus | 350 | 100 | . | . | . | . | . | . | 8.7 |
|  |  |  | FImpute | Angus | 350 | 100 | . | . | . | . | . | . | 4.8 |
|  |  |  | Impute2 | Angus | 350 | 100 | . | . | . | . | . | . | 3.8 |
|  |  |  | Beagle | Charolais | 350 | 100 | . | . | . | . | . | . | 19.8 |
|  |  |  | FImpute | Charolais | 350 | 100 | . | . | . | . | . | . | 7.7 |
|  |  |  | Impute2 | Charolais | 350 | 100 | . | . | . | . | . | . | 6.7 |
|  | Pigs | [Wellman *et al.* (2013)](file:///D:\USERDATA\paper\imputation_accuracy_review\Table_5.xlsx#RANGE!_ENREF_56) | Beagle | Pietrain | 795 | 100 | 6.7 | 4 | . | 2.7 | 1.1 | . | . |
|  |  | Badke *et al.* (2013) | Beagle | Yorkshire | 64 | 200 | . | . | . | . | . | . | 4.9 |
|  | Layers | [Vereijken *et al.* (2010)](file:///D:\USERDATA\paper\imputation_accuracy_review\Table_5.xlsx#RANGE!_ENREF_50) | Beagle | Brown layers | 57 | 249 | 12.4 | . | 8.6 | . | 4.9 | . | . |
|  | Sheep | [Hayes *et al.* (2012)](file:///D:\USERDATA\paper\imputation_accuracy_review\Table_5.xlsx#RANGE!_ENREF_23) | fastPHASE | Border Leicester | 40 | 19 | . | . | 15 | . | 11.5 | 10 | . |
|  |  |  | fastPHASE | TERM7 | 155 | 52 | . | . | 19.5 | . | 16.5 | 15 | . |
|  |  |  | fastPHASE | Merino | 153 | 51 | . | . | 20 | . | 19 | 18.5 | . |
|  |  |  | Beagle | Border Leicester | 40 | 19 | . | . | . | . | . | 9.5 | . |
|  |  |  | Beagle | TERM | 155 | 52 | . | . | . | . | . | 10 | . |
|  |  |  | Beagle | Merino | 153 | 51 | . | . | . | . | . | 19.5 | . |

1 The measures are imputation accuracy (Acc.) and allele imputation error rate (AIER). AIER is computed as half the genotype imputation error rate for studies that provided the latter measure.

2 Description and references of imputation methods are given in Table 1.

3 This is the Bovine3K (Illumina Inc.) ([Dassonneville *et al.*, 2012](#_ENREF_13), [Huang *et al.*, 2012a](#_ENREF_33), [Huang *et al.*, 2012b](#_ENREF_34), [Wang *et al.*, 2012](#_ENREF_58)), or an in silico 3k panel for all other studies.

4 This is the BovineLD with 6,909 SNPs (Illumina Inc.) ([Huang *et al.*, 2012a](#_ENREF_33), [Sun *et al.*, 2012](#_ENREF_50), [Ventura *et al.*, 2014](#_ENREF_55)), the GeneSeek Genomic Profiler (containing 10k SNPs of which 6890 were retained for analysis; Badke *et al.,* 2013, Badke *et al.,* 2014) or an in silico 6k panel for all other studies.

5 NA = information was not available in the original study.

6 This is a multibreed reference population (including: 195, 140, 526, 189, 688, 506, and 180 bulls for Aberdeen Angus, Belgian Blue, Charolais, Hereford, Holstein-Friesian, Limousin and Simmental, respectively).

7 TERM = White faced Suffolks and Poll Dorsets.