

Table S1. Data types generated by the Ag100Pest project and their repositories.

Data Type	Repositories	Data submission notes
Project	NCBI BioProject (https://www.ncbi.nlm.nih.gov/bioproject/), i5k Workspace@NAL (http://i5k.nal.usda.gov/)	Ag100Pest Umbrella BioProject: PRJNA555319
Physical Sample	National repositories, for example GGBN/GBIF	It is our intention to provide vouchers and exemplars as available to the Smithsonian Global Genome Initiative (GGI, https://naturalhistory.si.edu/research/global-genome-initiative).
Sample metadata	NCBI BioSample (https://www.ncbi.nlm.nih.gov/biosample/), i5k Workspace@NAL (https://i5k.nal.usda.gov/)	All Ag100Pest BioSamples use the Invertebrate 1.0 Sample package (https://www.ncbi.nlm.nih.gov/biosample/docs/packages/Invertebrate.1.0/)
DNA and RNA high-throughput sequencing data	NCBI SRA (http://www.ncbi.nlm.nih.gov/sra)	NA
Genome assembly	NCBI assembly (https://www.ncbi.nlm.nih.gov/assembly/), i5k Workspace@NAL	NA
Gene structural annotations	NCBI RefSeq (https://www.ncbi.nlm.nih.gov/refseq/), i5k Workspace@NAL (https://i5k.nal.usda.gov/)	The NCBI RefSeq eukaryotic annotation pipeline generates gene structural annotations.
Protein functional annotations	i5k Workspace@NAL (https://i5k.nal.usda.gov/)	The AgBase functional annotation workflow is used to generate protein functional annotations.
Gene manual annotations	i5k Workspace@NAL (https://i5k.nal.usda.gov/), NCBI GenBank (https://www.ncbi.nlm.nih.gov/genbank/)	Community curators at the i5k Workspace@NAL using the Apollo software perform gene manual annotations.

Table S2. Ag100Pest assembly metrics. Table of assembly size and contig N50 for data presented in Figure 3. Data includes 47 species over 7 orders for which Ag100Pest has completed HiFi sequencing and contig assemblies.

Species	Order	Assembly Length (Mbp)	Contig N50 (Mbp)
<i>Anthonomus grandis grandis</i>	Coleoptera	862.04	4.42
<i>Anthonomus grandis thurberi</i>	Coleoptera	738.84	9.89
<i>Aphthona nigricutis</i>	Coleoptera	1,048.75	3.38
<i>Curculio caryae</i>	Coleoptera	2,223.01	4.92
<i>Cylas formicarius</i>	Coleoptera	394.20	2.97
<i>Cynaues angustus</i>	Coleoptera	244.95	11.79
<i>Diabrotica undecimpunctata</i>	Coleoptera	540.93	21.43
<i>Diorhabda carinulata</i>	Coleoptera	417.24	23.46
<i>Diorhabda carinata</i>	Coleoptera	448.66	24.53
<i>Diorhabda elongata</i>	Coleoptera	481.40	12.82
<i>Diorhabda sublineata</i>	Coleoptera	456.34	13.82
<i>Gnatocerus cornutus</i>	Coleoptera	342.84	15.45
<i>Lasioderma serricorne</i>	Coleoptera	231.76	5.19
<i>Latheticus oryzae</i>	Coleoptera	175.49	11.19
<i>Oryzaephilus mercator</i>	Coleoptera	144.03	2.52
<i>Oryzaephilus surinamensis</i>	Coleoptera	173.49	5.98
<i>Trogoderma granarium</i>	Coleoptera	307.73	9.49
<i>Tribolium brevicornis</i>	Coleoptera	706.82	9.82
<i>Tribolium castaneum</i> GA-2	Coleoptera	242.40	13.86
<i>Tribolium castaneum</i> Wakefield	Coleoptera	272.48	1.19
<i>Tribolium confusum</i>	Coleoptera	438.46	11.54
<i>Trogoderma variabile</i>	Coleoptera	342.38	15.00
<i>Chaetopsis massyla</i>	Diptera	220.32	34.36
<i>Euxesta stigmatias</i>	Diptera	521.07	2.02
<i>Musca autumnalis</i> female	Diptera	2,306.19	2.53
<i>Musca autumnalis</i> male	Diptera	2,210.83	3.52
<i>Stomoxys calcitrans</i>	Diptera	1,159.87	5.56
<i>Strauzia longitudinalis</i>	Diptera	1,019.91	2.20
<i>Aphis gossypii</i>	Hemiptera	416.81	17.16
<i>Anasa tristis</i>	Hemiptera	1,917.22	1.77
<i>Bactericera maculipennis</i>	Hemiptera	462.30	1.95
Mealy Bug	Hemiptera	320.50	1.49
<i>Diprion similis</i>	Hymenoptera	280.20	19.00
<i>Neodiprion lecontei</i>	Hymenoptera	273.27	8.16
<i>Neodiprion pinetum</i>	Hymenoptera	272.19	4.68
<i>Neodiprion virginianus</i>	Hymenoptera	263.17	11.04
<i>Neodiprion fabricii</i>	Hymenoptera	260.84	14.83
<i>Vespa crabro</i>	Hymenoptera	331.76	6.61
<i>Vespa mandarina</i> female	Hymenoptera	329.49	2.59
<i>Vespa mandarina</i> male	Hymenoptera	317.48	2.84
<i>Vespula pensylvatica</i>	Hymenoptera	204.70	4.64
<i>Wasmannia auropunctata</i>	Hymenoptera	320.50	1.49
<i>Dermacentor andersoni</i>	Ixodida	2,752.49	70.43
<i>Haemaphysalis longicornis</i>	Ixodida	5,576.40	0.88
<i>Plodia interpunctella</i>	Lepidoptera	291.43	8.96
<i>Sitotroga cerealella</i>	Lepidoptera	334.95	8.92
<i>Schistocerca gregaria</i>	Orthoptera	8,746.28	44.58