WHAT IS CLAIMED IS:

1. An eHTP engineered from a scaffold toxin protein, wherein said eHTP exhibits Hemipteran insect species inhibitory activity against a Hemipteran pest species that is from about 2 to about 260 times greater than the Hemipteran inhibitory activity of said scaffold toxin; and optionally wherein said eHTP exhibits at least about 95% amino acid sequence identity to said toxin protein.

2. The eHTP of claim 1, said eHTP having the amino acid sequence as set forth in any of the proteins selected from the group consisting of SEQ ID NO:34, SEQ ID NO:6, SEQ ID NO:8, SEQ ID NO:10, SEQ ID NO:12, SEQ ID NO:14, SEQ ID NO:16, SEQ ID NO:18, SEQ ID NO:20, SEQ ID NO:28, SEQ ID NO:30, SEQ ID NO:32, SEQ ID NO:36, SEQ ID NO:37, SEQ ID NO:38, SEQ ID NO:39, SEQ ID NO:40, SEQ ID NO:41, SEQ ID NO:42, SEQ ID NO:43, SEQ ID NO:44, SEQ ID NO:45, SEQ ID NO:46, SEQ ID NO:47, SEQ ID NO:48, SEQ ID NO:49, SEQ ID NO:50, SEQ ID NO:51, SEQ ID NO:52, SEQ ID NO:53, SEQ ID NO:54, SEQ ID NO:55, SEQ ID NO:56, SEQ ID NO:57, SEQ ID NO:58, SEQ ID NO:59, SEQ ID NO:60, SEQ ID NO:61, SEQ ID NO:62, SEQ ID NO:63, SEQ ID NO:64, SEQ ID NO:65, SEQ ID NO:66, SEQ ID NO:67, SEQ ID NO:68, SEQ ID NO:69, SEQ ID NO:70, SEQ ID NO:71, SEQ ID NO:72, SEQ ID NO:73, SEQ ID NO:74, SEQ ID NO:75, SEQ ID NO:76, SEQ ID NO:77, SEQ ID NO:78, SEQ ID NO:79, SEQ ID NO:80, SEQ ID NO:81, SEQ ID NO:82, SEQ ID NO:83, SEQ ID NO:84, SEQ ID NO:85, SEQ ID NO:86, SEQ ID NO:87, SEQ ID NO:88, SEQ ID NO:89, SEQ ID NO:90, SEQ ID NO:91, SEQ ID NO:92, SEQ ID NO:93, SEQ ID NO:94, SEQ ID NO:95, SEQ ID NO:96, SEQ ID NO:97, SEQ ID NO:98, SEQ ID NO:99, SEQ ID NO:100, SEQ ID NO:101, SEQ ID NO:102, SEQ ID NO:103, SEQ ID NO:104, SEQ ID NO:105, SEQ ID NO:106, SEQ ID NO:107, SEQ ID NO:108, SEQ ID NO:109, SEQ ID NO:110, SEQ ID NO:111, SEQ ID NO:112, SEQ ID NO:113, SEQ ID NO:114, SEQ ID NO:115, SEQ ID NO:116, SEQ ID NO:117, SEQ ID NO:118, SEQ ID NO:119, SEQ ID NO:120, SEQ ID NO:121, SEQ ID NO:122, SEQ ID NO:123, SEQ ID NO:124, SEQ ID NO:125, SEQ ID NO:126, SEQ ID NO:127, SEQ ID NO:128, SEQ ID NO:129, SEQ ID NO:130, SEQ ID NO:131, SEQ ID NO:132, SEQ ID NO:133, SEQ ID NO:134, SEQ ID NO:135, SEQ ID

NO:136, SEQ ID NO:137, SEQ ID NO:138, SEQ ID NO:139, SEQ ID NO:140, SEQ ID NO:141, SEQ ID NO:142, SEQ ID NO:143, SEQ ID NO:144, SEQ ID NO:145, SEQ ID NO:146, SEQ ID NO:147, SEQ ID NO:148, SEQ ID NO:149, SEQ ID NO:150, SEQ ID NO:151, SEQ ID NO:152, SEQ ID NO:153, SEQ ID NO:154, SEQ ID NO:155, SEQ ID NO:156, SEQ ID NO:157, SEQ ID NO:158, SEQ ID NO:159, SEQ ID NO:160, SEQ ID NO:161, SEQ ID NO:162, SEQ ID NO:163, SEQ ID NO:164, SEQ ID NO:165, SEQ ID NO:166, SEQ ID NO:167, SEQ ID NO:168, SEQ ID NO:169, SEQ ID NO:170, SEQ ID NO:171, SEQ ID NO:172, SEQ ID NO:173, SEQ ID NO:174, SEQ ID NO:175, SEQ ID NO:176, SEQ ID NO:177, SEQ ID NO:178, SEQ ID NO:179, SEQ ID NO:202, and SEQ ID NO:204, or an insect inhibitory fragment thereof.

3. The eHTP of claim 1, wherein said scaffold toxin protein is selected from the group consisting of SEQ ID NO:2 (TIC807), SEQ ID NO:8 (TIC807_M2), SEQ ID NO:182 (Cry51Aa1), SEQ ID NO:184 (TIC853), and SEQ ID NO:206 (AXMI-171).

4. The eHTP of claim 1, further comprising at least one amino acid substitution, at least one amino acid addition, or at least one amino acid deletion in said scaffold toxin protein selected from the group consisting of SEQ ID NO:2 (TIC807), SEQ ID NO:8 (TIC807_M2), SEQ ID NO:182 (Cry51Aa1), SEQ ID NO:184 (TIC853), and SEQ ID NO:206 (AXMI-171).

5. The eHTP of claim 4, wherein in the alternative:

(i) said amino acid substitution, addition, or deletion is in a solvent accessible amino acid residue of SEQ ID NO:2;

(ii) said amino acid substitution, addition, or deletion is within 3 consecutive amino acid residues of a solvent accessible amino acid residue of SEQ ID NO:2; or

(iii) said eHTP has the amino acid sequence as set forth in SEQ ID NO:180.

6. The eHTP of claim 5, wherein said eHTP comprises at least one substitution or deletion selected from the group consisting of asparagine at position 12 replaced

by aspartic acid, phenylalanine at position 46 replaced by serine, isoleucine at position 52 replaced by methionine, tyrosine at position 54 replaced by histidine, threonine at position 68 replaced by alanine, glutamine at position 70 replaced by alanine, alanine at position 87 replaced by serine, threonine at position 93 replaced by alanine, serine at position 95 replaced by alanine, glycines at position 105 replaced by alanine, serine at position 117 replaced by alanine, serine at position 119 replaced by alanine, glutamate at position 125 replaced by cysteine, histidine, arginine, phenylalanine, serine, glutamine, lysine, threonine, asparagine, alanine, leucine, valine, methionine, aspartic acid, or tyrosine, glycines at position 128 replaced by alanine, threonine at position 133 replaced by glutamic acid, tyrosine, or tryptophan, isoleucine at position 134 replaced by alanine, valine, leucine, phenylalanine, lysine, cysteine, or methionine, glutamate at position 135 replaced by serine, alanine, valine, tryptophan, or threonine, asparagine at position 137 replaced by histidine, tyrosine, threonine, glutamic acid, serine, alanine, glutamine, glycine, isoleucine, tryptophan, lysine, cysteine, methionine, aspartic acid, phenylalanine, or arginine, phenylalanine at position 138 replaced by valine, Ala139 replaced by serine, Thr145 replaced by alanine, Phe147 replaced by serine, valine, threonine, cysteine, leucine, aspartic acid, alanine, glycine, glutamic acid, isoleucine, tyrosine, methionine, asparagine, glutamine, hystidine, alanine, arginine, tryptophan, or proline, glutamine at position 148 replaced by alanine, glutamine at position 149 replaced by aspartic acid, glutamic acid, cysteine, alanine, or phenylalanine, alanine at position 150 replaced by serine, leucine, valine, glycine, aspartic acid, tryptophan, glutamic acid, asparagine, tyrosine, phenylalanine, proline, lysine, threonine, glutamine, or arginine, seroine at position 151 replaced by alanine, aspartate at position 153 replaced by alanine, glutamate at position 155 replaced by cysteine, isoleucine, lysine, aspartic acid, histidine, tyrosine, glutamine, lysine, asparagine, threonine, alanine, phenylalanine, arginine, methionine, proline, tryptophan, serine, or valine, asparagine at position 157 replaced by cysteine, aspartic acid, tryptophan, tyrosine, methionine, alanine, phenylalanine, valine, leucine, proline, glutamic acid, threonine, glycine, isoleucine, or arginine, isoleucine at position 158 replaced by alanine, serine at position 159 replaced by alanine or threonine, serine at position 167 replaced by arginine or alanine, valine at position 175 replaced by alanine, methionine at position 177 replaced by alanine, asparagine at position 180

replaced by aspartic acid, threonine at position 182 replaced by alanine, leucine at position 187 replaced by alanine, histidine at position 196 deleted, tyrosine at position 197 deleted, serine at position 198 deleted, histidine at position 199 deleted, tyrosine at position 200 replaced by alanine, tyrosine at position 200 deleted, Ser201 replaced by alanine, serine at position 201 deletion, tryptophan at position 208 replaced by alanine, serine at position 217 replaced by asparagine, proline at position 219 replaced by arginine, tryptophan at position 223 replaced by tyrosine, phenylalanine at position 235 replaced by alanine, asparagine at position 239 replaced by alanine, aspartate at position 241 replaced by alanine, threonine at position 243 replaced by alanine, valine at position 244 replaced by isoleucine, threonine at position 245 replaced by alanine, tyrosine at position 246 replaced by phenylalanine, threonine at position 247 replaced by alanine or lysine, serine at position 249 replaced by alanine or arginine, valine at position 250 replaced by alanine, valine at position 251 replaced by alanine, serine at position 252 replaced by alanine, arginine at position 273 replaced by tryptophan, threonine at position 274 replaced by alanine, isoleucine at position 275 replaced by alanine, arginine at position 282 replaced by alanine, histidine at position 287 replaced by alanine or phenylalanine, serine at position 293 replaced by alanine, asparagine at position 295 replaced by alanine, glutamate at position 299 replaced by alanine, methionine at position 300 replaced by alanine, threonine at position 303 replaced by alanine, proline at position 305 replaced by alanine, isoleucine at position 306 replaced by alanine, and threonine at position 308 replaced by alanine;

wherein said substitution or deletion is made with reference to the scaffold toxin protein TIC807 as set forth in SEQ ID NO:2, or to the TIC807 corresponding amino acid residue position of TIC807_M2 as set forth in SEQ ID NO:8, Cry51Aa1 as set forth in SEQ ID NO:182, or TIC853 as set forth in SEQ ID NO:184; and

wherein said eHTP comprises any combination of said substitutions or deletions.

7. The eHTP of claim 6, wherein said eHTP comprises at least one amino acid substitution, one amino acid addition, or one amino acid deletion at an amino acid residue of SEQ ID NO:2 selected from (i) an amino acid residue having a relative solvent-accessibility of at least from about 15% to about 36%; and (ii) an amino

acid residue located within a distance of about 3 consecutive residues from an amino acid having at least from about 15% to about 36% relative solvent accessibility.

8. The eHTP of claim 7, wherein said eHTP comprises optionally:
   a. at least one amino acid substitution, one amino acid addition, or one amino acid deletion at an amino acid residue of SEQ ID NO:2 selected from the group consisting of Thr93, Ser95, Ser97, Phe147, Gln149, Ser151, Asn180, Thr182, Val251, Gln253, and Ser255;
   b. at least one additional amino acid substitution, one amino acid addition, or one amino acid deletion at an amino acid residue of SEQ ID NO: 2 selected from the group consisting of Val10, Ile14, Asn22, Asn23, Gly24, Ile25, Gln26, Gly27, Phe30, Gln38, Ile39, Asp40, Thr41, Ile43, Ser193, Thr194, Glu195, His196, Tyr197, Ser198, His199, Tyr200, Ser201, Gly202, Tyr203, Pro204, Ile205, Leu206, Thr207, Trp208, Ile209, Ser210, Tyr216, Ser217, Gly218, Pro219, Pro220, Met221, Ser222, Trp223, Tyr224, Phe225, Asn239, and Val244;
   c. at least one amino acid substitution, one amino acid addition, or one amino acid deletion at an amino acid residue of SEQ ID NO: 2 selected from the group consisting of Val10, Ile14, Asn22, Asn23, Gly24, Ile25, Gln26, Gly27, Phe30, Gln38, Ile39, Asp40, Thr41, Ile43, Ser193, Thr194, Glu195, His196, Tyr197, Ser198, His199, Tyr200, Ser201, Gly202, Tyr203, Pro204, Ile205, Leu206, Thr207, Trp208, Ile209, Ser210, Tyr216, Ser217, Gly218, Pro219, Pro220, Met221, Ser222, Trp223, Tyr224, Phe225, Asn239, and Val244;
   d. one or more mutations in SEQ ID NO:2 selected from the group consisting of S95A, F147A, Q149E, V251A, P219R; or
   e. a contiguous triple deletion in SEQ ID NO:2 in residue range 196-201.

9. The eHTP of claim 8, further modified to exhibit increased solubility compared to the native *Bacillus thuringiensis* protein as set forth in SEQ ID NO:2, wherein said eHTP comprises at least one modification relative to SEQ ID NO:2, said modification comprising a lysine substitution at one or more of the following amino acid positions: 58, 59, 198, 199, 201, or 202; or a glutamic acid substitution at one or more of the amino acid positions 198, 248, or 301; or an arginine

substitution at one or more of the amino acid positions 246, 250, or 253.

10. The eHTP of claim 9, wherein said Hemipteran pest species is selected from the group consisting of *Lygus hesperus, Lygus lineolaris*, and *Amrasca devastans*.

11. An insect inhibitory composition comprising the eHTP of claim 10.

12. The insect inhibitory composition of claim 11, further comprising at least one insect inhibitory agent different from said eHTP, wherein said insect inhibitory agent is selected from the group consisting of an insect inhibitory protein, an insect inhibitory dsRNA molecule, and an insect inhibitory chemistry;
wherein said insect inhibitory protein different from said eHTP is selected from the group consisting of a Cry1 toxin, a Cry2 toxin, a Cry 5 toxin, a Cry7 toxin, a Cry9 toxin, and a VIP3 toxin; and
wherein said insect inhibitory chemistry is selected from the group consisting of pyrethrins and synthetic pyrethroids; oxadizine derivatives; chloronicotinyls; nitroguanidine derivatives; triazoles; organophosphates; pyrrols; pyrazoles; phenyl pyrazoles; diacylhydrazines; biological/fermentation products; and carbamates.

13. A method of controlling a Hemipteran pest, comprising contacting said pest with a *Hemipteran* inhibitory amount of the eHTP of claim 10, wherein said Hemipteran pest is in a cotton field.

14. A recombinant polynucleotide encoding the eHTP of claim 10, and optionally comprising:
    a. the nucleotide sequence selected from the group consisting of SEQ ID NO:33, SEQ ID NO:1, SEQ ID NO:3, SEQ ID NO:5, SEQ ID NO:7, SEQ ID NO:9, SEQ ID NO:11, SEQ ID NO:13, SEQ ID NO:15, SEQ ID NO:17, SEQ ID NO:19, SEQ ID NO:21, SEQ ID NO:23, SEQ ID NO:25, SEQ ID NO:27, SEQ ID NO:29, SEQ ID NO:31, SEQ ID NO:35, SEQ ID NO:186, SEQ ID NO:187, SEQ ID NO:188, SEQ ID NO:189, SEQ ID NO:190, SEQ ID NO:191, SEQ ID NO:192, SEQ ID NO:193, SEQ ID NO:194, SEQ ID NO:195, SEQ ID NO:196, SEQ ID NO:197, SEQ ID NO:198, SEQ ID NO:199, SEQ ID NO:200, SEQ ID NO:201, and SEQ ID NO:203; or

b. a nucleotide sequence encoding one or more insect inhibitory agents that are different from the eHTP encoded by said recombinant polynucleotide.

15. A transgenic plant cell, plant or plant part comprising the recombinant polynucleotide of claim 14, and wherein optionally:
   a. said plant part is a seed, a boll, a leaf, a flower, a stem, a root, or any portion thereof; or
   b. said plant part is a non-regenerable portion of said seed, boll, leaf, flower, stem, or root.

16. A method of controlling a Hemipteran pest, comprising exposing the pest to the transgenic plant cell, plant or plant part of claim 15, wherein said plant cell, plant or plant part expresses a Hemipteran inhibitory amount of said eHTP.

17. A commodity product derived from the plant cell, plant or plnat part of claim 15, wherein said product comprises a detectable amount of said recombinant polynucleotide; and wherein said product is selected from the group consisting of plant biomass, oil, meal, animal feed, flour, flakes, bran, lint, hulls, and processed seed; and wherein optionally said product is non-regenerable.

18. A method of making a plant resistant to Hemipteran pest infestation, comprising the steps of introducing a recombinant polynucleotide encoding an eHTP into a plant cell; regenerating from said plant cell a transgenic plant expressing an insect inhibitory amount of the eHTP; and demonstrating Hemipteran pest infestation resistance as a property of said transgenic plant;
wherein said plant optionally:
   a. is selected from the group consisting of a dicot plant and a monocot plant;
   b. is selected from the group consisting of alfalfa, almont, banana, barley, bean, beet, broccoli, cabbage, brassica, brinjal, carrot, cassava, castor, cauliflower, celery, chickpea, Chinese cabbage, celery, citrus, coconut, coffee, corn, clover, cotton, a cucurbit, cucumber, Douglas fir, eggplant, eucalyptus, flax, garlic, grape, guar, hops, leek, legumes, lettuce, Loblolly pine, millets, melons, nectarine, nut, oat, okra, olive, onion, ornamental, palm, pasture grass, papaya, pea, peach, peanut, pepper, pigeonpea, pine, potato, poplar, pumpkin, Radiata

pine, radish, rapeseed, rice, rootstocks, rye, safflower, shrub, sorghum, Southern pine, soybean, spinach, squash, strawberry, sugar beet, sugarcane, sunflower, sweet corn, sweet gum, sweet potato, switchgrass, tea, tobacco, tomato, triticale, turf grass, watermelon, and wheat; or

c. comprises a supplemental agent selected from the group consisting of an insect inhibitory protein different from said eHTP, an insect inhibitory dsRNA molecule, and an insect inhibitory chemistry;

wherein said insect inhibitory protein different from said eHTP is selected from the group consisting of a Cry1 toxin, a Cry2 toxin, a Cry 5 toxin, a Cry7 toxin, a Cry9 toxin, and a VIP3 toxin; and

wherein said insect inhibitory chemistry is selected from the group consisting of pyrethrins and synthetic pyrethroids; oxadizine derivatives; chloronicotinyls; nitroguanidine derivatives; triazoles; organophosphates; pyrrols; pyrazoles; phenyl pyrazoles; diacylhydrazines; biological/fermentation products; and carbamates.

19. The method of claim 18, wherein said Hemipteran insect pest is selected from the group consisting of plant bugs (including the Family Miridae), cicadas from the Family Cicadidae, leafhoppers (*e. g.*, *Empoasca spp.*, *Amrasca spp.* from the Family Cicadellidae including the tribe Empoascini, e.g. *Amrasca biguttula, Amrasca devastans, Austroasca viridigrisea, Asymmetrasca decedens, Empoasca decipiens, Empoasca distinguenda, Empoasca dolichi, Empoasca fabae, Empoasca kerri, Empoasca kraemeri, Empoasca onukii, Empoasca sakaii, Empoasca smithi, Empoasca vitis, Jacobiasca lybica, Sonasasca Solana*, tribe Erythroneurini, e.g. *Empoascanara nagpurensis, Thaiaassamensis, Zygnidia quyumi*, tribe Nirvaniae, *Sophonia rufofascia*, Family Delphacidae, e.g. *Nilapoarvata lugens, Sogatella furcifera, Unkanodes sapporonus*, and Family Lophopidae, e.g. *Zophiuma lobulata*), planthoppers (from the families Fulgoroidea and Delphacidae), treehoppers (from the Family Membracidae), psyllids (from the Family Psyllidae), whiteflies (from the Family Aleyrodidae), aphids (from the Family Aphididae), phylloxera (from the Family Phylloxeridae), mealybugs (from the Family Pseudococcidae), scales (from the families Coccidae, Diaspididae and Margarodidae), lace bugs (from the Family Tingidae), stink bugs (from the Family Pentatomidae), cinch bugs (*e. g.*, *Blissus spp.* and other seed bugs from the Family Lygaeidae), spittlebugs (from the Family Cercopidae),

squash bugs (from the Family Coreidae), red bugs and cotton stainers (from the Family Pyrrhocoridae), *Acrosternum hilare* (green stink bug), *Anasa tristis* (squash bug), *Blissus leucopterus leucopterus* (chinch bug), *Corythuca gossypii* (cotton lace bug), *Cyrtopeltis modesta* (tomato bug), *Dysdercus suturellus* (cotton stainer), *Euschistus servus* (brown stink bug), *Euschistus variolarius* (one-spotted stink bug), *Graptostethus spp.* (complex of seed bugs), *Leptoglossus corculus* (leaf-footed pine seed bug), *Lygus lineolaris* (tarnished plant bug), *Lygus hesperus* (Western tarnish plant bug), *Nezara viridula* (southern green stink bug), *Oebalus pugnax* (rice stink bug), *Oncopeltus fasciatus* (large milkweed bug), and *Pseudatomoscelis seriatus* (cotton fleahopper).

20. An eHTP (engineered Hemipteran toxic protein) selected from the group consisting of SEQ ID NO:34, of SEQ ID NO:6, SEQ ID NO:8, SEQ ID NO:10, SEQ ID NO:12, SEQ ID NO:14, SEQ ID NO:16, SEQ ID NO:18, SEQ ID NO:20, SEQ ID NO:28, SEQ ID NO:30, SEQ ID NO:32, SEQ ID NO:36, SEQ ID NO:37, SEQ ID NO:38, SEQ ID NO:39, SEQ ID NO:40, SEQ ID NO:41, SEQ ID NO:42, SEQ ID NO:43, SEQ ID NO:44, SEQ ID NO:45, SEQ ID NO:46, SEQ ID NO:47, SEQ ID NO:48, SEQ ID NO:49, SEQ ID NO:50, SEQ ID NO:51, SEQ ID NO:52, SEQ ID NO:53, SEQ ID NO:54, SEQ ID NO:55, SEQ ID NO:56, SEQ ID NO:57, SEQ ID NO:58, SEQ ID NO:59, SEQ ID NO:60, SEQ ID NO:61, SEQ ID NO:62, SEQ ID NO:63, SEQ ID NO:64, SEQ ID NO:65, SEQ ID NO:66, SEQ ID NO:67, SEQ ID NO:68, SEQ ID NO:69, SEQ ID NO:70, SEQ ID NO:71, SEQ ID NO:72, SEQ ID NO:73, SEQ ID NO:74, SEQ ID NO:75, SEQ ID NO:76, SEQ ID NO:77, SEQ ID NO:78, SEQ ID NO:79, SEQ ID NO:80, SEQ ID NO:81, SEQ ID NO:82, SEQ ID NO:83, SEQ ID NO:84, SEQ ID NO:85, SEQ ID NO:86, SEQ ID NO:87, SEQ ID NO:88, SEQ ID NO:89, SEQ ID NO:90, SEQ ID NO:91, SEQ ID NO:92, SEQ ID NO:93, SEQ ID NO:94, SEQ ID NO:95, SEQ ID NO:96, SEQ ID NO:97, SEQ ID NO:98, SEQ ID NO:99, SEQ ID NO:100, SEQ ID NO:101, SEQ ID NO:102, SEQ ID NO:103, SEQ ID NO:104, SEQ ID NO:105, SEQ ID NO:106, SEQ ID NO:107, SEQ ID NO:108, SEQ ID NO:109, SEQ ID NO:110, SEQ ID NO:111, SEQ ID NO:112, SEQ ID NO:113, SEQ ID NO:114, SEQ ID NO:115, SEQ ID NO:116, SEQ ID NO:117, SEQ ID NO:118, SEQ ID NO:119, SEQ ID NO:120, SEQ ID NO:121, SEQ ID NO:122, SEQ ID NO:123, SEQ ID NO:124,

SEQ ID NO:125, SEQ ID NO:126, SEQ ID NO:127, SEQ ID NO:128, SEQ ID NO:129, SEQ ID NO:130, SEQ ID NO:131, SEQ ID NO:132, SEQ ID NO:133, SEQ ID NO:134, SEQ ID NO:135, SEQ ID NO:136, SEQ ID NO:137, SEQ ID NO:138, SEQ ID NO:139, SEQ ID NO:140, SEQ ID NO:141, SEQ ID NO:142, SEQ ID NO:143, SEQ ID NO:144, SEQ ID NO:145, SEQ ID NO:146, SEQ ID NO:147, SEQ ID NO:148, SEQ ID NO:149, SEQ ID NO:150, SEQ ID NO:151, SEQ ID NO:152, SEQ ID NO:153, SEQ ID NO:154, SEQ ID NO:155, SEQ ID NO:156, SEQ ID NO:157, SEQ ID NO:158, SEQ ID NO:159, SEQ ID NO:160, SEQ ID NO:161, SEQ ID NO:162, SEQ ID NO:163, SEQ ID NO:164, SEQ ID NO:165, SEQ ID NO:166, SEQ ID NO:167, SEQ ID NO:168, SEQ ID NO:169, SEQ ID NO:170, SEQ ID NO:171, SEQ ID NO:172, SEQ ID NO:173, SEQ ID NO:174, SEQ ID NO:175, SEQ ID NO:176, SEQ ID NO:177, SEQ ID NO:178, SEQ ID NO:179, SEQ ID NO:202, and SEQ ID NO:204, or an insect inhibitory fragment thereof.

WHAT IS CLAIMED IS:

1. An insect inhibitory polypeptide comprising the amino acid sequence as set forth in SEQ ID NO: 34, wherein said insect inhibitory polypeptide exhibits inhibitory activity against an insect species of the order Hemiptera.

2. The insect inhibitory polypeptide of claim 1, wherein said Hemipteran insect species is selected from the group consisting of a *Lygus* sp., *a Empoasca* sp., and an *Amrasca* sp.

3. The insect inhibitory polypeptide of claim 2, wherein said Hemipteran insect species is selected from the group consisting of *Lygus hesperus, Lygus lineolaris*, *Amrasca devastans*, and a combination thereof.

4. A polynucleotide encoding the insect inhibitory polypeptide of any one of claims 1 to 3 that comprises a nucleotide sequence that is 99% identical to the sequence set forth in SEQ ID NO: 201.

5. The polynucleotide of claim 4, wherein said polynucleotide is 100% identical to the sequence set forth in SEQ ID NO: 201.

6. A host cell comprising the polynucleotide of claim 4 or 5, wherein said host cell is a bacterial host cell selected from the group consisting of *Agrobacterium, Rhizobium*, *Bacillus*, *Escherichia*, *Pseudomonas*, and *Salmonella* or a plant host cell.

7. The host cell of claim 6, wherein the bacterial host cell is a *Bacillus thuringiensis* or an *Escherichia coli.*

8. A transgenic plant, or part thereof, comprising a polynucleotide that is 99% identical to the sequence set forth in SEQ ID NO: 201 encoding an insect inhibitory polypeptide comprising the amino acid sequence as set forth in SEQ ID NO: 34.

9. The transgenic plant, or part thereof, of claim 8, wherein said polynucleotide comprises the nucleotide sequence set forth in SEQ ID NO: 201.

10. The transgenic plant, or part thereof, of claim 8, wherein said transgenic plant is selected from the group consisting of alfalfa, almond, banana, barley, bean, beet, broccoli, cabbage, brassica, brinjal, carrot, cassava, castor, cauliflower, celery, chickpea, Chinese cabbage, celery, citrus, coconut, coffee, corn, clover, cotton, a cucurbit, cucumber, Douglas fir, eggplant, eucalyptus, flax, garlic, grape, guar, hops, leek, legumes, lettuce, Loblolly pine, millets, melons, nectarine, nut, oat, okra, olive, onion, ornamental, palm, pasture grass, papaya, pea, peach, peanut, pepper, pigeonpea, pine, potato, poplar, pumpkin, Radiata pine, radish, rapeseed, rice, rootstocks, rye, safflower, shrub, sorghum, Southern pine, soybean, spinach, squash, strawberry, sugar beet, sugarcane, sunflower, sweet corn, sweet gum, sweet potato, switchgrass, tea, tobacco, tomato, triticale, turf grass, watermelon, and wheat.

11. The transgenic plant, or part thereof, of claim 10, wherein said transgenic plant, or part thereof, is a cotton plant.

12. The transgenic plant, or part thereof, of claim 8, wherein said part is selected from the group consisting of a pollen, an ovule, a seed, a boll, a leaf, a flower, a stem, a root, and a cell.

13. An insect inhibitory composition comprising the insect inhibitory polypeptide of claim 1 and a polynucleotide encoding the insect inhibitory polypeptide.

14. The insect inhibitory composition of claim 13, further comprising at least one insect inhibitory agent that is different from said insect inhibitory polypeptide and that exhibits activity against one or more pest species of the order Lepidoptera, Coleoptera, Hemiptera, or Homoptera, wherein said at least one insect inhibitory agent is selected from the group consisting of an insect inhibitory protein, an insect inhibitory dsRNA molecule, and an insect inhibitory chemistry.

15. A method of controlling a Hemipteran pest, the method comprising presenting the Hemipteran pest with an inhibitory amount of the insect inhibitory polypeptide of any one of claims 1 to 3.

16. The method of claim 15, wherein said presenting is via expressing said insect inhibitory polypeptide in a cotton plant.

17. A method of controlling a Hemipteran pest, comprising exposing the Hemipteran pest to the transgenic plant, or part thereof, of claim 8, wherein said transgenic plant, or part thereof, expresses a Hemipteran inhibitory amount of said insect inhibitory polypeptide.

18. A commodity product obtained from the transgenic plant, or part thereof, of claim 8, wherein said commodity product is selected from the group consisting of plant biomass, oil, meal, animal feed, flour, flakes, bran, lint, and hulls and comprises a detectable amount of said insect inhibitory polypeptide.

19. A method of making a plant resistant to Hemipteran pest infestation, comprising the steps of introducing a recombinant polynucleotide encoding an engineered Hemipteran toxic protein (eHTP) into a plant cell wherein said recombinant polynucleotide comprises the nucleotide sequence as set forth in SEQ ID NO: 201; regenerating from said plant cell a transgenic plant expressing an insect inhibitory amount of the eHTP; and demonstrating Hemipteran pest infestation resistance as a property of said transgenic plant, wherein said plant optionally:

a. is selected from the group consisting of a dicot plant and a monocot plant;

b. is selected from the group consisting of alfalfa, almond, banana, barley, bean, beet, broccoli, cabbage, brassica, brinjal, carrot, cassava, castor, cauliflower, celery, chickpea, Chinese cabbage, celery, citrus, coconut, coffee, corn, clover, cotton, a cucurbit, cucumber, Douglas fir, eggplant, eucalyptus, flax, garlic, grape, guar, hops, leek, legumes, lettuce, Loblolly pine, millets, melons, nectarine, nut, oat, okra, olive, onion, ornamental, palm, pasture grass, papaya, pea, peach, peanut, pepper, pigeonpea, pine, potato, poplar, pumpkin, Radiata pine, radish, rapeseed, rice, rootstocks, rye, safflower, shrub, sorghum, Southern pine, soybean, spinach, squash, strawberry, sugar beet, sugarcane, sunflower, sweet corn, sweet gum, sweet potato, switchgrass, tea, tobacco, tomato, triticale, turf grass, watermelon, and wheat; or

c. comprises a supplemental agent selected from the group consisting of an insect

inhibitory protein different from said eHTP, an insect inhibitory dsRNA molecule, and an insect inhibitory chemistry;

wherein said insect inhibitory protein different from said eHTP is selected from the group consisting of a Cry1 toxin, a Cry2 toxin, a Cry 5 toxin, a Cry7 toxin, a Cry9 toxin, and a VIP3 toxin; and

wherein said insect inhibitory chemistry is selected from the group consisting of pyrethrins and synthetic pyrethroids, oxadizine derivatives, chloronicotinyls, nitroguanidine derivatives, triazoles, organophosphates, pyrrols, pyrazoles, phenyl pyrazoles, diacylhydrazines, biological/fermentation products, and carbamates.

20. The method of claim 19, wherein said Hemipteran insect pest is selected from the group consisting of plant bugs (including the Family Miridae), cicadas from the Family Cicadidae, leafhoppers (*e. g.*, *Empoasca spp.*, *Amrasca spp.* from the Family Cicadellidae including the tribe Empoascini, e.g. *Amrasca biguttula, Amrasca devastans, Austroasca viridigrisea, Asymmetrasca decedens, Empoasca decipiens, Empoasca distinguenda, Empoasca dolichi, Empoasca fabae, Empoasca kerri, Empoasca kraemeri, Empoasca onukii, Empoasca sakaii, Empoasca smithi, Empoasca vitis, Jacobiasca lybica, Sonasasca Solana*, tribe Erythroneurini, e.g. *Empoascanara nagpurensis, Thaiaassamensis, Zygnidia quyumi*, tribe Nirvaniae, *Sophonia rufofascia*, Family Delphacidae, e.g. *Nilapoarvata lugens, Sogatella furcifera, Unkanodes sapporonus*, and Family Lophopidae, e.g. *Zophiuma lobulata*), planthoppers (from the families Fulgoroidea and Delphacidae), treehoppers (from the Family Membracidae), psyllids (from the Family Psyllidae), whiteflies (from the Family Aleyrodidae), aphids (from the Family Aphididae), phylloxera (from the Family Phylloxeridae), mealybugs (from the Family Pseudococcidae), scales (from the families Coccidae, Diaspididae and Margarodidae), lace bugs (from the Family Tingidae), stink bugs (from the Family Pentatomidae), cinch bugs (*e. g.*, *Blissus spp.* and other seed bugs from the Family Lygaeidae), spittlebugs (from the Family Cercopidae), squash bugs (from the Family Coreidae), red bugs and cotton stainers (from the Family Pyrrhocoridae), *Acrosternum hilare* (green stink bug), *Anasa tristis* (squash bug), *Blissus leucopterus leucopterus*

(chinch bug), *Corythuca gossypii* (cotton lace bug), *Cyrtopeltis modesta* (tomato bug), *Dysdercus suturellus* (cotton stainer), *Euschistus servus* (brown stink bug), *Euschistus variolarius* (one-spotted stink bug), *Graptostethus spp.* (complex of seed bugs), *Leptoglossus corculus* (leaf-footed pine seed bug), *Lygus lineolaris* (tarnished plant bug), *Lygus hesperus* (Western tarnish plant bug), *Nezara viridula* (southern green stink bug), *Oebalus pugnax* (rice stink bug), *Oncopeltus fasciatus* (large milkweed bug), and *Pseudatomoscelis seriatus* (cotton fleahopper).