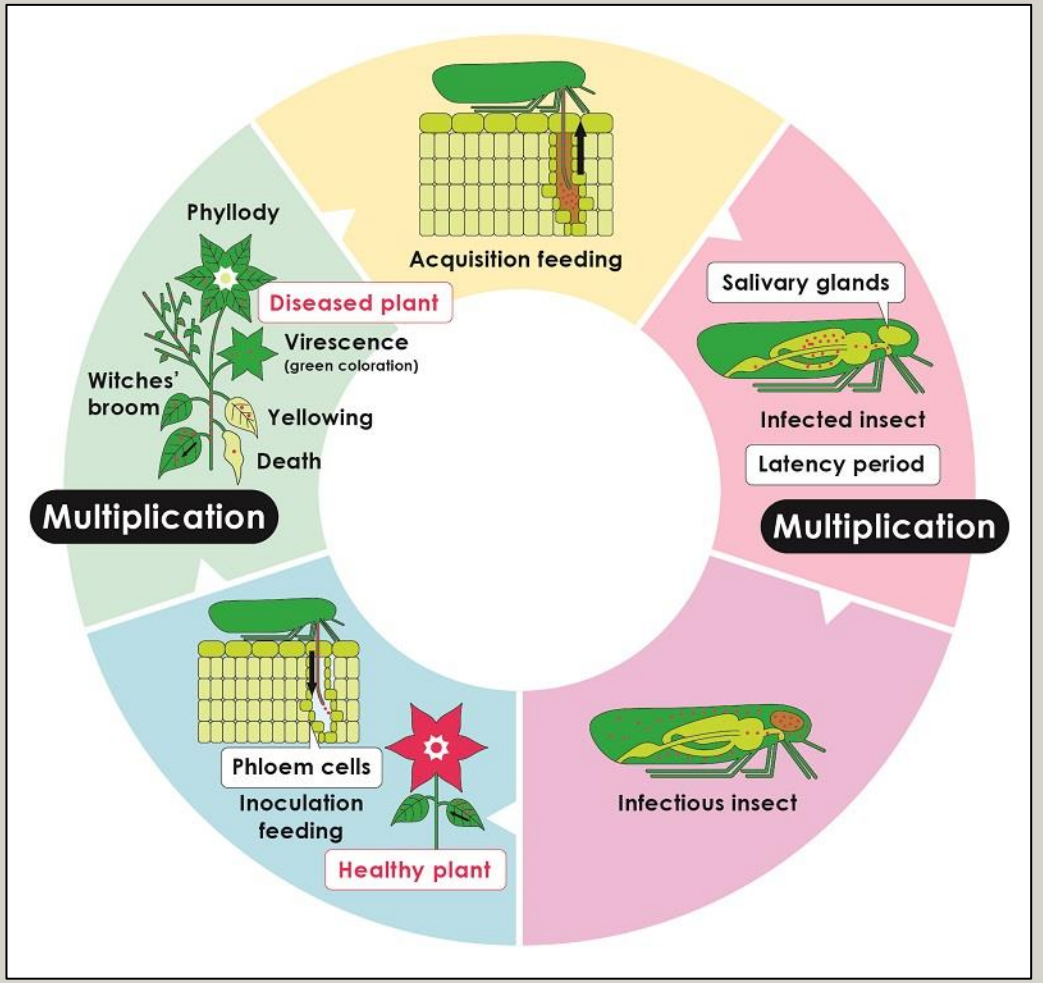
Phytoplasma Disease Database

Phytoplasmas

- Cell wall-less bacteria that infect phloem tissue
- Are carried by insect vectors
- Causes symptoms such as yellowing, shoot proliferation, and witches'-broom growth



Classification

- Phytoplasmas cannot be cultured in vitro, resulting in a lack of phenotypic markers
- Development of DNA sequencing technology helped in classification of many phytoplasmas
- Issue with many current classification systems and databases is their inconsistencies when including plant hosts, insect vectors, and host countries

Goals of Database

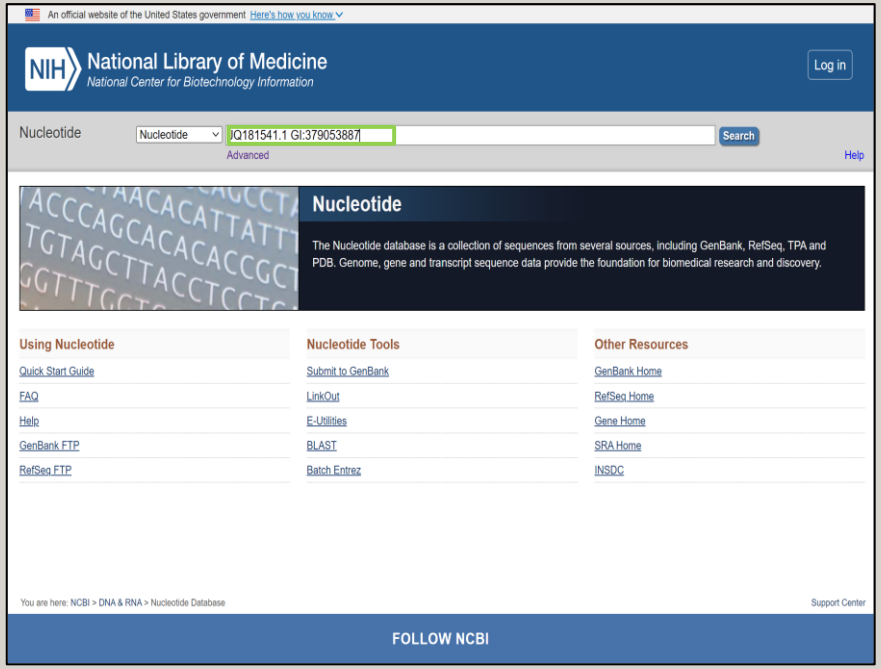
- Systematically construct a phytoplasma disease database
- Create a system which can isolate phytoplasmas based on host, symptom, and insect vectors
- Find connections between phytoplasma strains in different countries

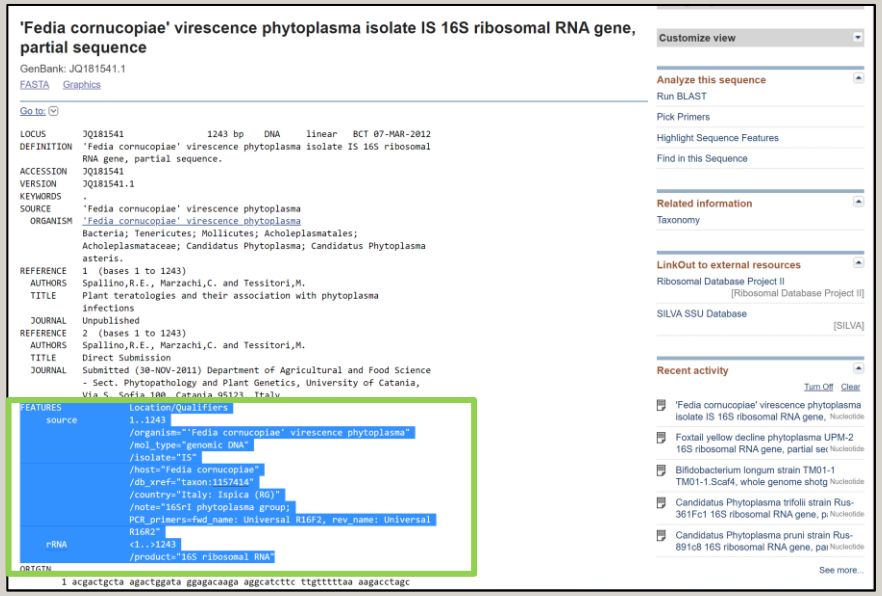
Data Collection Process

12	JQ181547.1 GI:379053893	Rumex bucephalophorus' dwarf phytoplasma isolate MR1 16S ribosomal RNA gene, partial sequence	horned, red, or ruby dock	Rumex bucephalophorus L.
13	JQ181546.1 GI:379053892	Picris echioides' yellows phytoplasma Cal 16S ribosomal RNA gene, partial sequence	bristly oxtongue	Picris echioides not used Helminthotheca echioides (L.) Holub.
14	JQ181545.1 GI:379053891	Opuntia ficus-indica' phytoplasma isolate CT3 16S ribosomal RNA gene, partial sequence	prickly pear	Opuntia ficus-indica (L.) Mill.
15	JQ181544.1 GI:379053890	Austrocylindropuntia exaltata' phytoplasma isolate CT2 16S ribosomal RNA gene, partial sequence	Eve's Needle, Cane Cholla	Austrocylindropuntia exaltata (synonym); Austrocylindropuntia subulata ssp. exaltata - accepted.
16	JQ181543.1 GI:379053889	Opuntia subulata' phytoplasma isolate CT1 16S ribosomal RNA gene, partial sequence	Eve's Needle Cactus	Opuntia subulata - not accepted; Austrocylindropuntia subulata (Muehlenpf.) Backeb.
17	JQ181542.1 GI:379053888	Linaria multicaulis' fasciation phytoplasma isolate TR 16S ribosomal RNA gene, partial sequence	toadflax	Linaria heterophylla Desf. (accepted Linaria multicaulis (L.) Mill.)
18	JQ181541.1 GI:379053887	'Fedia cornucopiae' virescence phytoplasma isolate IS 16S ribosomal RNA gene, partial sequence	African valerian	Fedia cornucopiae
19	KY581664.1 GI:1187424250	Candidatus Phytoplasma aurantifolia isolate 190-16S-C4.0.2 16S ribosomal RNA gene, partial sequence	goatnut, jojoba	Simmondsia chinensis
20	KY581663.1 GI:1187424249	Candidatus Phytoplasma aurantifolia isolate 189-16S.0.2 16S ribosomal RNA gene, partial sequence	goatnut, jojoba	Simmondsia chinensis
21	KY704479.1 GI:1179881330	Candidatus Phytoplasma aurantifolia isolate 192-cpn60-C10.1 chaperonin-60 (cpn60) gene, partial cds	goatnut, jojoba	Simmondsia chinensis
22	KY704478.1 GI:1179881322	Candidatus Phytoplasma aurantifolia isolate 189-C2-cpn60.0.1 chaperonin-60 (cpn60) gene, partial cds	goatnut, jojoba	Simmondsia chinensis
23	KX670809.1 GI:1109585067	Candidatus Phytoplasma brasiliense -related phytoplasma isolate PeruGY1-5 16S ribosomal RNA gene and 16S-23S ribosomal RNA intergenic spacer, partial sequence	grapevine	Vitis vinifera
24	KX670808.1 GI:1109585066	Candidatus Phytoplasma brasiliense -related phytoplasma isolate PeruGY1-3 16S ribosomal RNA gene and 16S-23S ribosomal RNA intergenic spacer, partial sequence	grapevine	Vitis vinifera
25	KX670807.1 GI:1109585065	Candidatus Phytoplasma brasiliense -related phytoplasma isolate PeruGY1-4 16S ribosomal RNA gene and 16S-23S ribosomal RNA intergenic spacer, partial sequence	grapevine	Vitis vinifera
26	KU850951.1 GI:1028799895	Candidatus Phytoplasma meliae strain ChTYXIII-Ya4 SecA (secA) gene, partial cds	Chinaberry tree, chinaberry, Indian lilac, lelah, paraiso, pride of India, white cedar	Melia azedarach
		Candidatus Phytoplasma meliae strain ChTYXIII-BS2 SecA (secA)	Chinaberry tree, chinaberry,	

1. Find accession number of phytoplasma

2. Input accession number into NCBI Nucleotide database





3. Use entry to obtain host and location information 16S rRNA sequence

Compiled Statistics

- 37 Groups and 48 named phytoplasma species
- Over 500 identified plant hosts and 100 insect vectors
- From 20+ countries