

SLW Institute Webinars

Ag-Tech and Social Consciousness: Climate Change

Wednesday, March 11, 2020 at 1:00 PM CT



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Mark Stignani is a registered patent attorney at Schwegman Lundberg & Woessner who chairs the Analytics Practice Group. Mark has patent experience in various technology areas, including software, information systems, mobile devices, computer hardware and design, telecommunications, and mechanical. His practice includes prosecution, post-grant proceedings, patent and portfolio analysis, freedom to operate, patent strategy and planning and strategic counseling.

Mark has held a number of corporate counsel roles in practicing all forms of IP, Contracts, and other Technology Law disciplines at a number of global companies. He serves as advisor to a number of global companies on IP portfolio management and well as providing strategic insights and inferences on client and competitor portfolios.

Mark was also a farmer and has watched / worked with many of these technologies over the last 30 years.

Political disclaimer

SLW is neither here to promote nor decry climate change, merely to present the data within patent filings to highlight trends and vectors presented by the largest patent filers to support their innovation, profit lines and their view of their technology needs.

Presentation Scope

- Ag-Tech Companies have been filing in these types of categories as early as 1989 pre-Y02
- Extraction of patents using definitions of climate change, global warming, greenhouse gases(GHG) or other similar terms in the substance of their patent filings
- This analysis also relied on a CPC class (Cooperative Patent Classification) designation(Y02) to supplement its analytics (Y02 was introduced in 2010)

Ag-Tech Definitions

- Agricultural technology – or Ag-Tech – includes diverse technologies and methodologies like precision farming, drought and pest-resistant seeds, chemical applications, software supported technology as well as digital technology platforms.
- Acronym: Climate Change Mitigation(CCM)
- All of these were considered as fair game for this analytic series.

Who highlights CCM in their patents

- *Very few in US utility grants*
 - *119 use climate change*
 - *89 describe greenhouse gases*
- *Other words offer similar meaning*
 - *Adaptation (5540)*
 - *Sustainability (4039)*
 - **Resistant wrt climate condition (1518)*
 - *Carbon dioxide scrubbing(912)/ methane mitigation (2754)*
 - *Climate near a modifier like insensitive (587)*
 - *Drought (262)*
 - *And many other descriptors addressing climate change factors*
- *Other countries are similar*

CCM CPC codes

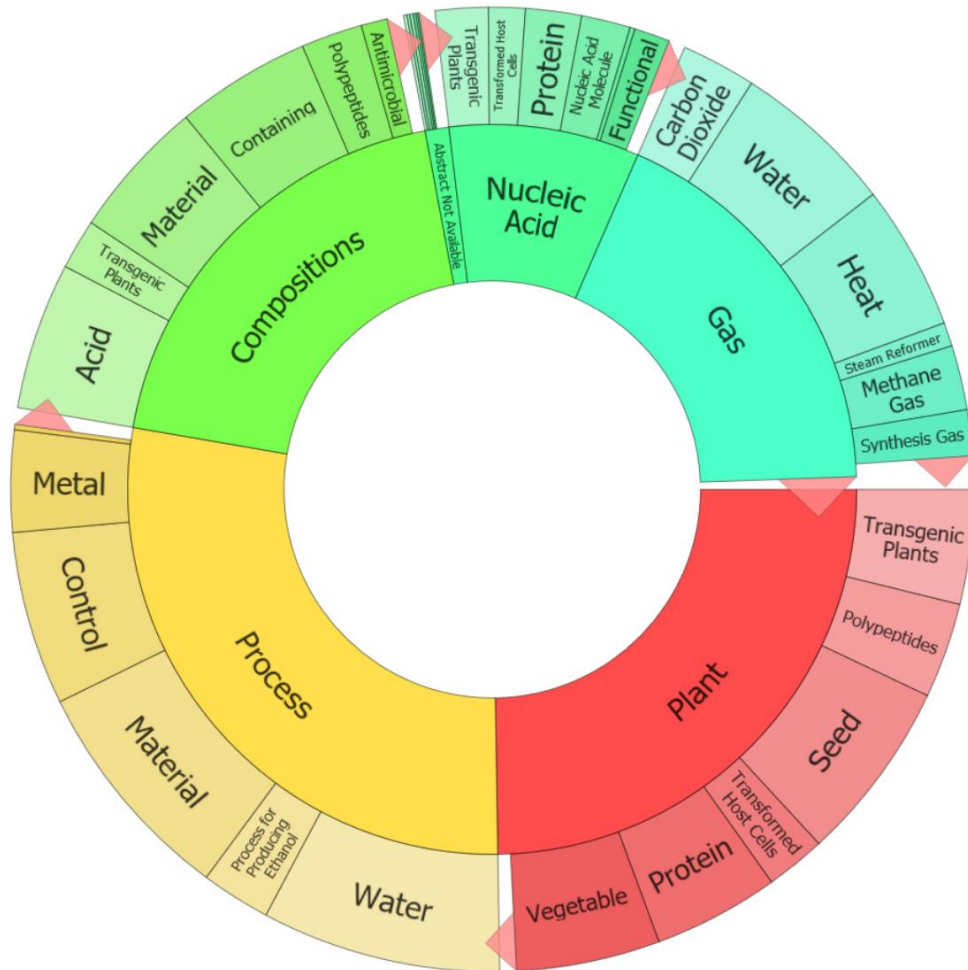
CPC Sub-classes	Descriptions
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Y02A	TECHNOLOGIES FOR ADAPTATION TO CLIMATE CHANGE
Y02B	CLIMATE CHANGE MITIGATION TECHNOLOGIES RELATED TO BUILDINGS, e.g. HOUSING, HOUSE APPLIANCES OR RELATED END-USER APPLICATIONS
Y02C	CAPTURE, STORAGE, SEQUESTRATION OR DISPOSAL OF GREENHOUSE GASES [GHG]
Y02D	CLIMATE CHANGE MITIGATION TECHNOLOGIES IN INFORMATION AND COMMUNICATION TECHNOLOGIES [ICT], I.E. INFORMATION AND COMMUNICATION TECHNOLOGIES AIMING AT THE REDUCTION OF THEIR OWN ENERGY USE
Y02E	REDUCTION OF GREENHOUSE GAS [GHG] EMISSIONS, RELATED TO ENERGY GENERATION, TRANSMISSION OR DISTRIBUTION
Y02P	CLIMATE CHANGE MITIGATION TECHNOLOGIES IN THE PRODUCTION OR PROCESSING OF GOODS
Y02T	CLIMATE CHANGE MITIGATION TECHNOLOGIES RELATED TO TRANSPORTATION
Y02W	CLIMATE CHANGE MITIGATION TECHNOLOGIES RELATED TO WASTEWATER TREATMENT OR WASTE MANAGEMENT

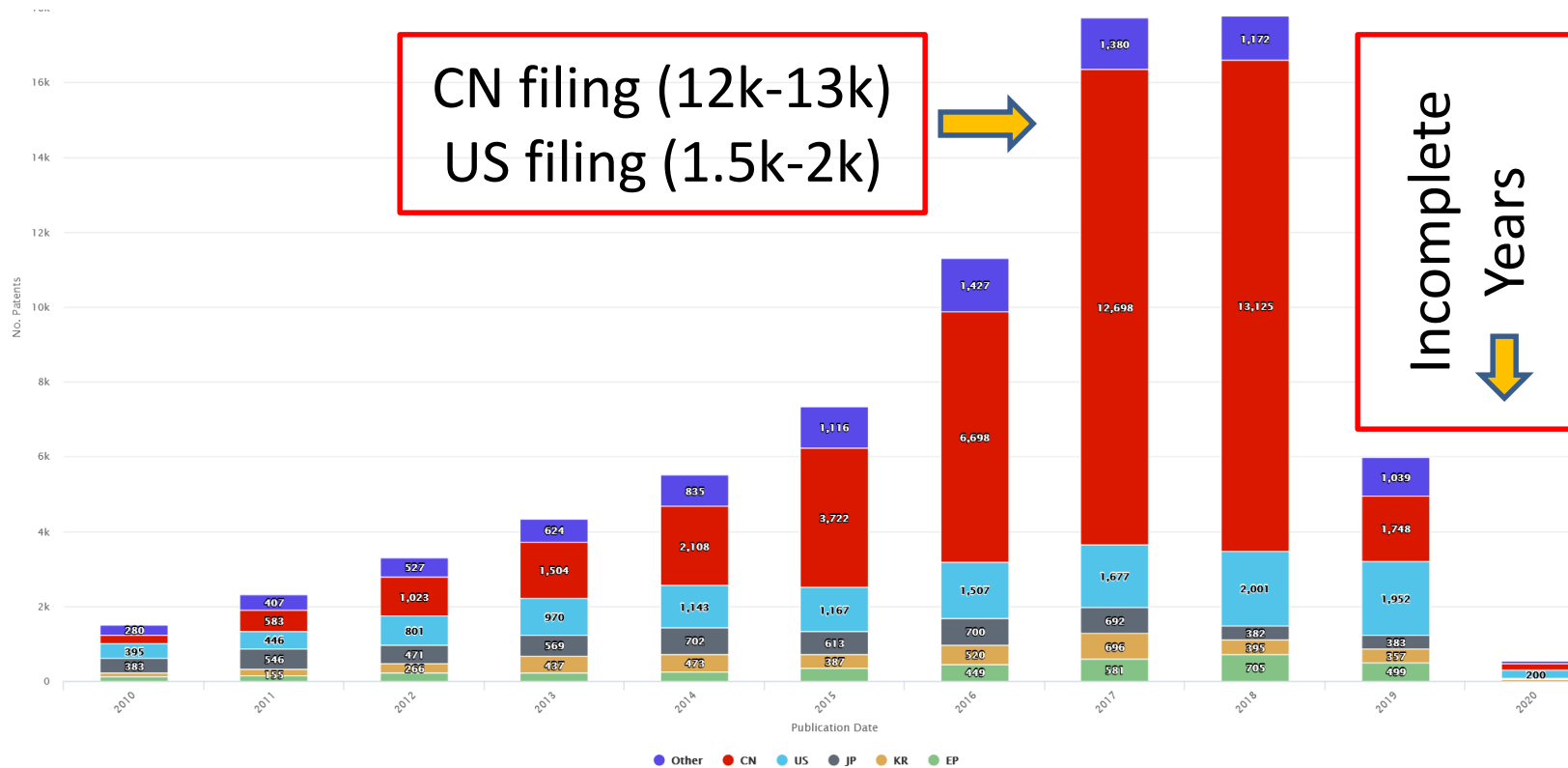
Global View

Ag-Tech CCM filings (82k)

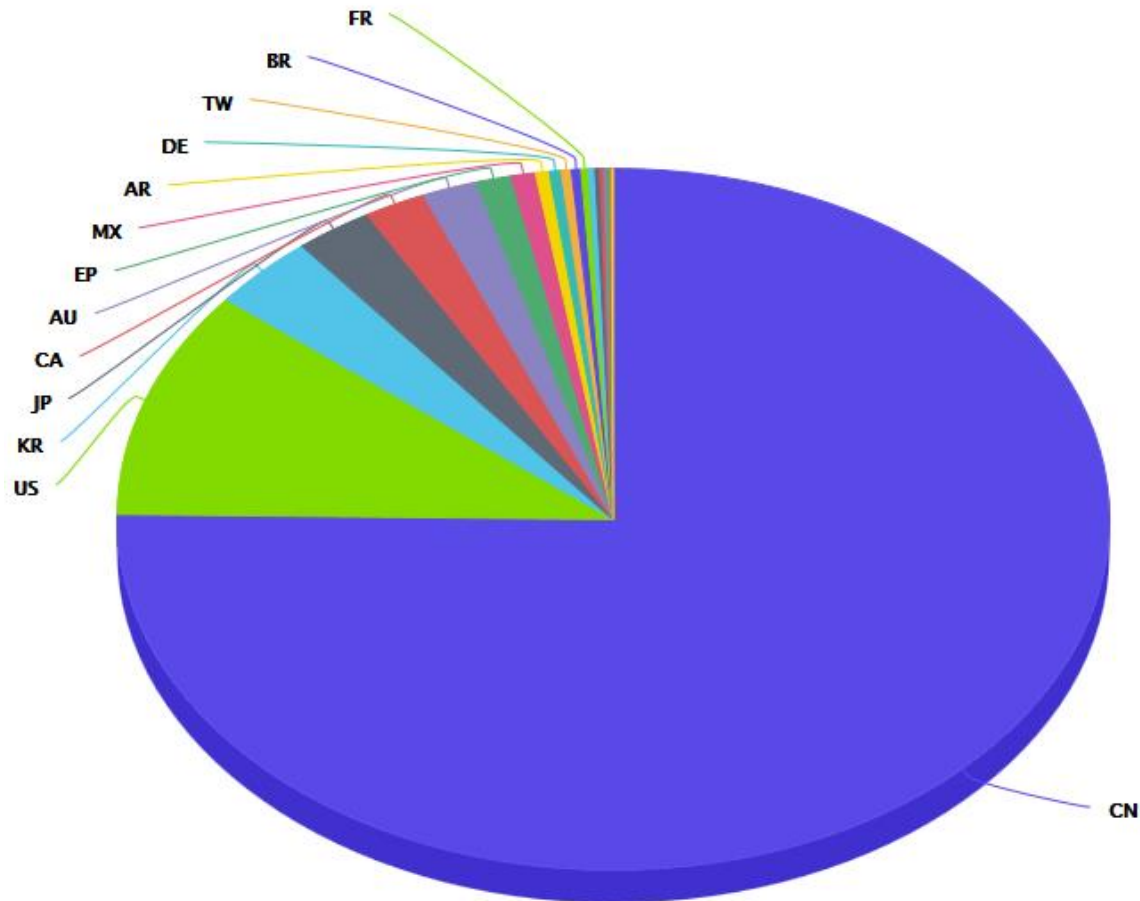
1. Bio/Genomic
2. AgChem
3. BioFuel
4. Gas treatment
5. Engine Tech



Ag-Tech/CCM Global Active Matters



CN Bias in Filings(5 years)



CN Climate Focus (5 years)

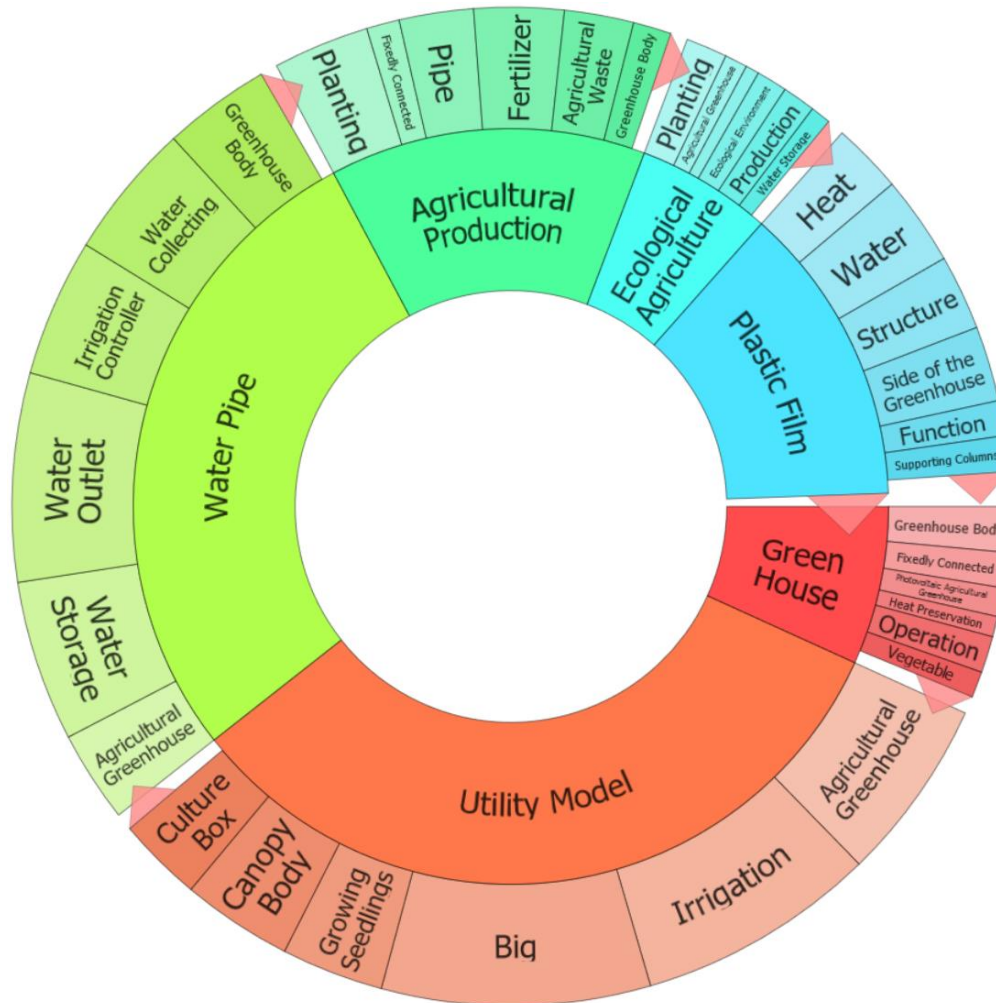
1. AgChem
2. BioFuel
3. Biowaste
4. Engine Tech



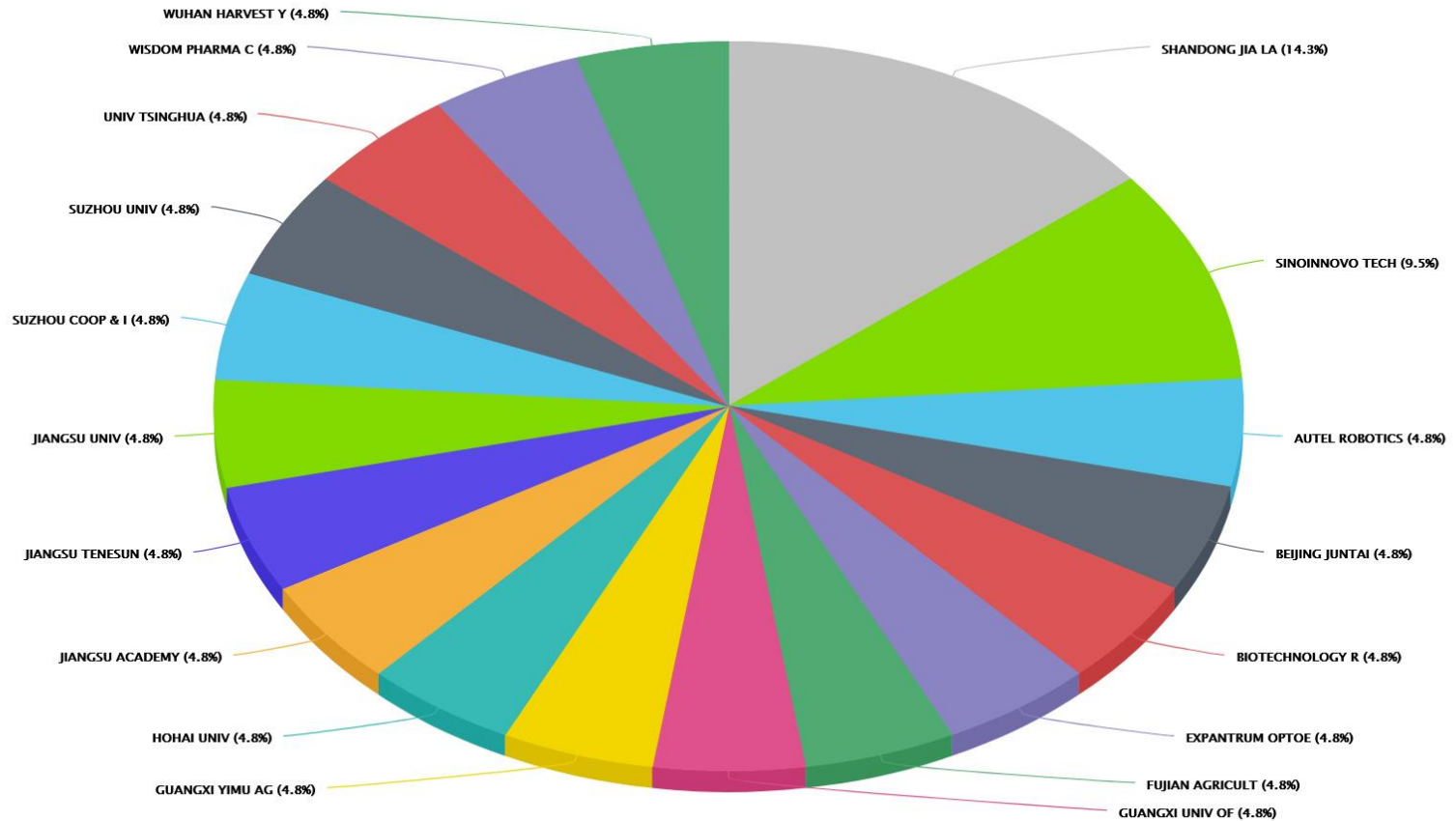
Big CN Focus(5 years) Y02A40

1. Irrigation
2. Planting
3. Greenhouse

US had 0 filings



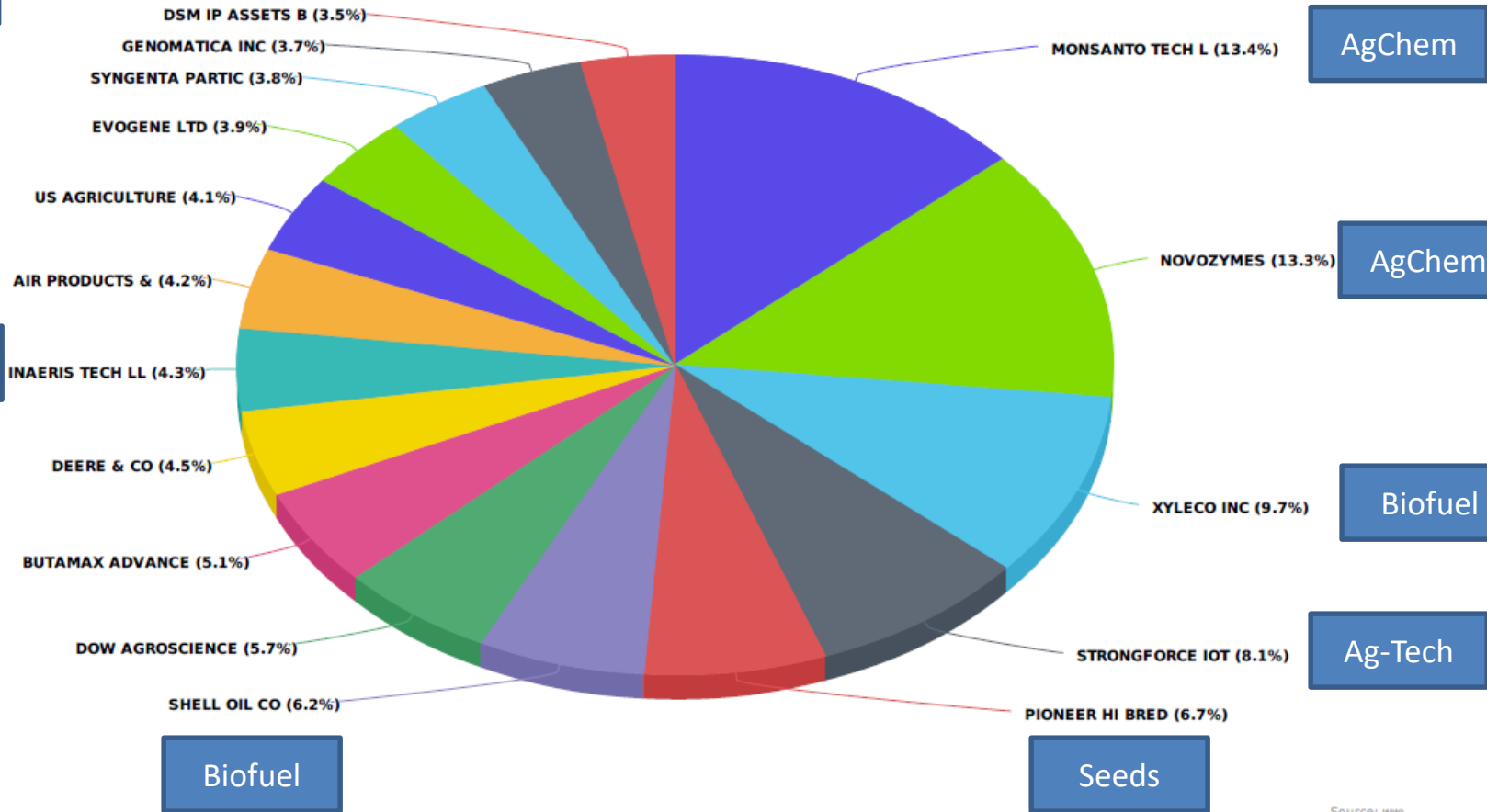
Limited Crossover to US filings (653)



US PORTFOLIO ANALYTICS (25K+)

PATENT PROTECTION FOR HIGH TECHNOLOGY

- Ag-Tech
- Seeds
- Seeds
- Seeds
- AgChem
- Biofuel
- Ag-Tech
- Biofuel
- AgChem

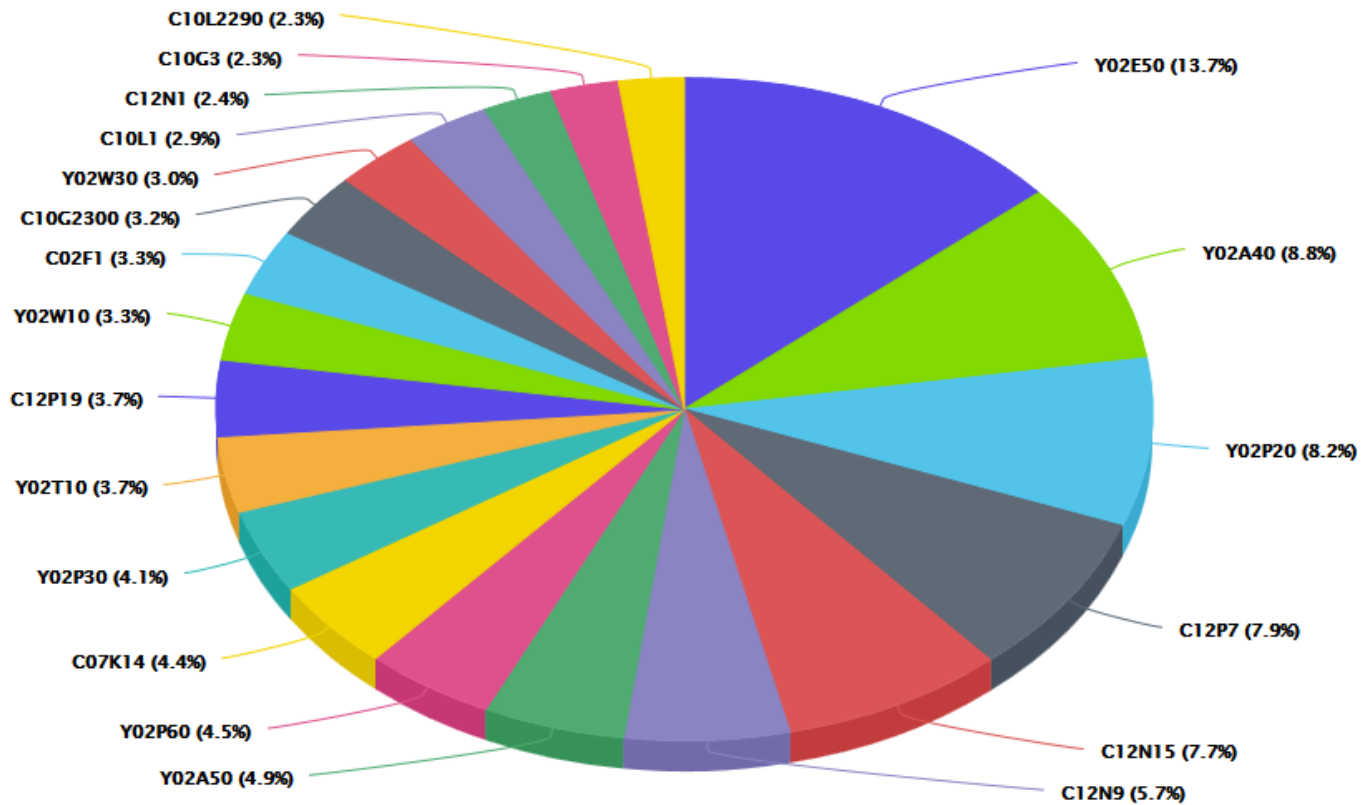


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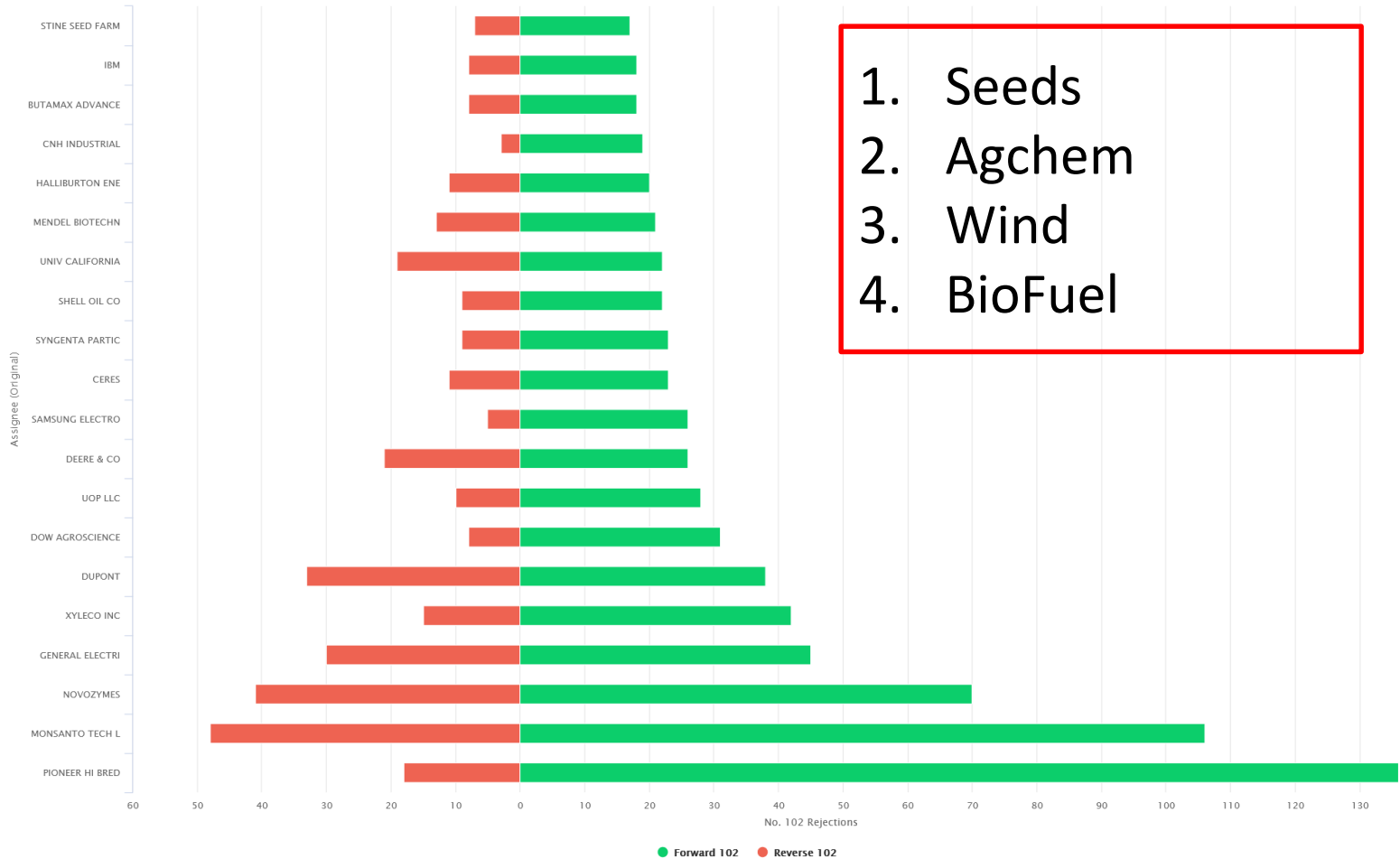
Player Take Aways?

1. Commercial organizations are the biggest movers
2. University/NGO are only patenting heavily in CN
3. Ag-Tech companies are firmly focused on extension of existing product lines
4. US Sec of Agriculture is also consistently filing CCM
 1. Latest filing in November 2019

Chemical CPC classes dominate



102 Rejection Impact



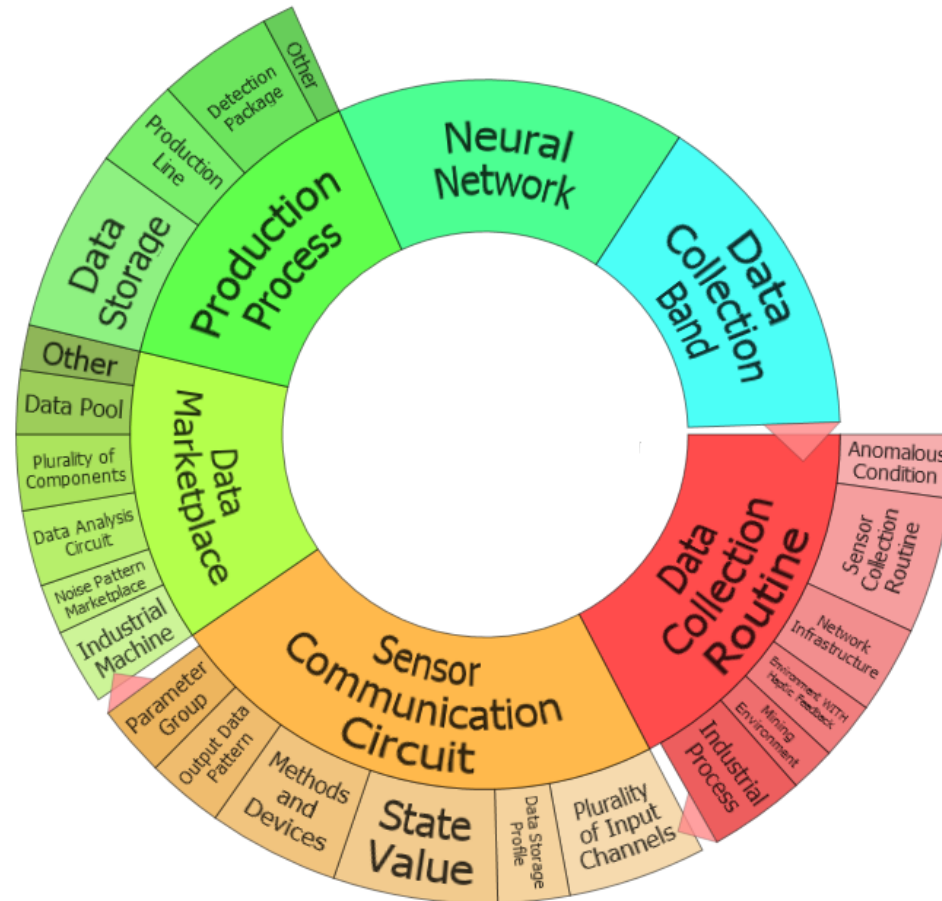
1. Seeds
2. Agchem
3. Wind
4. BioFuel

Ag-Tech Forward Trends (5 years)

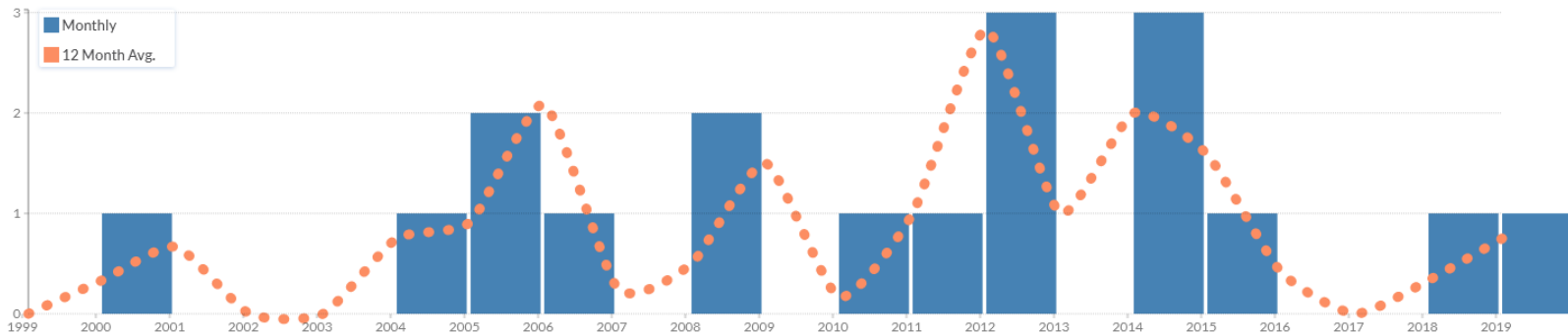
1. Gas Scrubbing
2. Energy Storage
3. Engine/Veh Tech
4. Field Tech



NPE: StrongForce IOT



Litigation



- Not much yet.....

Best of Lists – Top Forward Cited

Top Cited Companies	Forward Cites
Monsanto Technology LLC (AgChem)	7251
WITRICITY CORPORATION (Electric Vehicles – Ag)	3676
CORBION BIOTECH, INC. (Food ingredients/ Bioplastics)	1219
IROBOT CORPORATION (Autonomous ag vehicles)	1152
XYLECO, INC. (Biomass/Biofuel)	937
ARELAC, INC.(Gas Scrubbing)	919
BUTAMAX ADVANCED BIOFUELS LLC (Biofuel)	875
ZEACHEM, INC. (Biofuel)	847
Halliburton Energy Services, Inc. .(Gas Scrubbing)	828
ExxonMobil Chemical Patents Inc. .(Gas Scrubbing)	793

Best of Lists – Top Forward Cited

Forward 102 Rejection Leaders	Forward 102 Count
Monsanto Technology LLC	111
MENDEL BIOTECHNOLOGY, INC.(transgenics)	76
LIMAGRAIN EUROPE (transgenics)	73
WITRICITY CORPORATION	67
IROBOT CORPORATION	56
CERES, INC. (transgenics)	43
JAMES HARDIE TECHNOLOGY LIMITED (eco-materials – building)	40
Deere & Company (Ag-Tech, precision farming)	40
Halliburton Energy Services, Inc.	34
DANISCO US INC. (bioyeasts/biofungal/fermentation)	31

Forward Trends

- Growing
 - Carbon Capture/Methane Capture
 - Regenerative farming seeds/implements
 - Greenhouse Tech/Vertical Farming
 - Autonomous Ag/Precision Ag
- Declining
 - Carbon credits/carbon trading

Conclusions

- IP filings indicate a present and continuing CCM investment
 - Including some of the most significant polluting entities
 - Investment is broad spectrum technology
 - It is prevalent in all country filings / grants
- US leads all other filings countries but for CN as discussed
- There is no indication of this slowing down

Thank you for your participation.

For more information, please visit www.SLWip.com

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