Ag Tech Adoption and Generational Characteristics: Benefit-Cost Analysis Revisited

PrecisionAg Alliance Fall Q3 2021 Virtual Meeting
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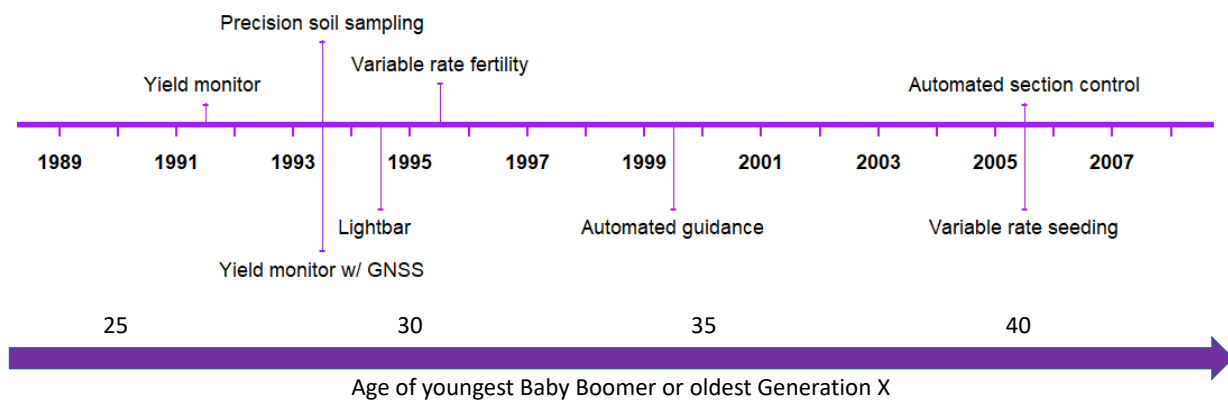
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Date of commercial availability

Precision soil sampling

Variable rate fertility

Yield monitor

Automated section control

| 1989 | 1991 | 1993 | 1995 | 1997 | 1999 | 2001 | 2003 | 2005 | 2007 |

Lightbar

Automated guidance

Variable rate seeding

Yield monitor w/ GNSS

25   30   35   40

Age of youngest Baby Boomer or oldest Generation X

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Generational Characteristics

	Silent Generation	Baby Boomers	Generation X	Millennials (Gen Y)	Generation Z
Year of Birth	Born before 1945	1946 to 1964	1965-1980	1981 to 1996	1997-2012
Work	Delay gratification; jobs are for life	Strong Professional Identity; Careers by employers	Less interested in promotion; Portable careers	Disconnect effort and reward; Work "with" not "for"	Risk elimination; Career multitaskers
Aspirations	Home Ownership	Job Security	Work/Life Balance	Freedom and Flexibility	Security and Stability
Technology	Largely disengaged; Hope to out-live it Snail Mail	Early IT adopters, Master it Facebook	Digital Immigrants; Enjoy it Email/Twitter	Digital Natives; Employ it Instagram	Technologic; Can't live without it Snapchat/GroupMe
Attitude towards authority	Honor and Respect them	Challenge them and Replace them	Ignore them	Leaders must respect you	I am the leader

Technology	Pertinent field operation time	Quality-of-life (QoL) score (benefit)	Human capital (HC) score (cost)	Rationale
Automated guidance	Pre-season Growing season Harvest	9	2	HC: Requires minimal training (switching on/off, error checking) QoL: reduces fatigue, allows additional activities
Automated section control	Growing season	6	1	HC: Requires less training than without the tech QoL: reduces fatigue, reduce operator responsibilities
Imagery	Growing season	2	9	HC: requires advanced skill sets and knowledge to make sure of data, QoL: none
Precision soil sampling	Pre-season	1	7	HC: Requires advanced skill sets and knowledge to make use of data QoL: none
Variable-rate application	Pre-season Growing season	2	9	HC: substantial knowledge requirements including risk QoL: none
Yield monitor	Harvest	1	8	HC: Requires advanced skill sets and knowledge (training) to make use of data QoL: none

1 = low benefit/cost, 10 = high benefit/cost

Summing up ag tech across generations

Explaining ag tech is NOT for every grower on every field
◦ Where, when, what, and **who**!
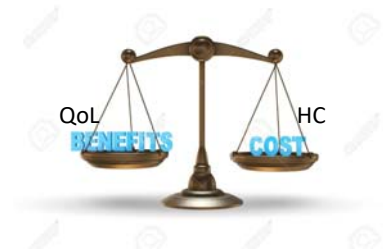◦ Sometimes waiting is optimal decision

Generation Z may operate farms differently than Baby Boomers
◦ Products in beta version not likely to be accepted

Developing ag tech for next generation
◦ Quality-of-life focused ag tech
◦ Automation of human capital tasks

QoL   HC

Generational skipping

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