

# Fast Facts

25 autonomy stats within the agriculture industry that might surprise you.

With machine learning already being used on today's farms, it's clear that the move to autonomous agriculture is no longer a vision of the future. It's here — transforming efficiencies — and soon, anything less will be a thing of the past.

To keep you in the know, Trimble Autonomy has researched and collected some of the latest data and statistics related to the current autonomous agriculture market, sustainability opportunities and the drivers behind the call for the technologies themselves.

## State of the autonomous agriculture market:

### 87%

By y/e 2021, 87% of U.S. agriculture businesses were using AI technologies, up from 74% the previous year. <sup>1</sup>

### \$25 B

Overall, farmers spent almost \$25 billion USD on tractors and other farm equipment in 2020. <sup>3</sup>

### 59.4 years

The average age of principal operators on farms is 59.4, with fewer young farmers coming in to fill their shoes. Farmers under 35 account for only 9% of the total population. <sup>4</sup>

### \$12 B on A.I.

Farms worldwide are expected to integrate robotics 7% faster than the industrial market over five years. Spending on robots will go from nearly \$5 billion in 2021 to nearly \$12 billion in 2026. <sup>5</sup>



### 15.6 B

The global precision farming market is expected to grow from \$8.5 billion USD in 2022 to \$15.6 billion in 2030, at a CAGR of 7.9%. The growth is attributed to growing adoption of advanced technologies and the Internet of Things. <sup>2</sup>

## Sustainability opportunities:

**298x**



The application of nitrogen fertilizer creates nitrous oxide (N<sub>2</sub>O) emissions, a potent greenhouse gas with a global warming potential 265 to 298 times that of carbon dioxide (CO<sub>2</sub>) over a 100-year period.<sup>6</sup>

**14%**



Farmers consistently using precision ag technologies saw a 7% increase in fertilizer placement efficiency, with an additional 14% possible through broader adoption.<sup>9</sup>

**90%**



The main advantage of precision weeding is the reduction of herbicide usage by almost 90%, compared with conventional blanket spraying, reports the University of Lincoln.<sup>7</sup>

**48 M**



Farmers consistently using precision ag technologies saw a 9% reduction in herbicide and pesticide use, with another 15% gain feasible through full adoption—resulting in another 48 million lbs of product avoided.<sup>10</sup>

**27.4 M  
MT**

The HORSCH sprayer enabled by Trimble technology provides the potential for avoiding CO<sub>2</sub> equivalent emissions of 27.4 million metric tons, the equivalent of 6 million passenger vehicles being taken off the road permanently.<sup>8</sup>

**16%**



Farmers consistently using precision ag technologies saw a 6% reduction in fossil fuel use. The industry could see another 16% drop through broader adoption of auto guidance & machine telematics.<sup>11</sup>

**21%**



Farmers consistently using precision ag technologies saw a 4% reduction in water use. Full adoption of technologies like soil moisture sensors could result in another 21% drop.<sup>12</sup>

Precision ag tech could save 2 million acres of cropland, 30 million fewer pounds of herbicide, 100 million fewer gallons of fossil fuel, and enough water saved to fill 750,000 Olympic-size swimming pools.<sup>13</sup>





## Primary drivers to adoption:

# 56%

Of the 56% of farmers have begun mechanization, 37% did so in an effort to ease labor shortages.<sup>14</sup>

# 115 M

Globally, farmers apply around 115 million tons of nitrogen to crops every year. Only around 35% of this is utilized, meaning 75 million tons of nitrogen runs off into our rivers, lakes and natural environments.<sup>15</sup>

# 44%

Pesticides can present acute and long-term health impacts worldwide, especially to farmers, 44% of whom experience pesticide poisoning every year.<sup>16</sup>

# 73%

A national survey tracked a 73% decline in self-employed and family farmworkers from 1950 to 2000. The number of hired farm hands declined 52% in that same time period.<sup>18</sup>

# 2022

USDA reports the largest expected farm production expense increase in 2022 is fertilizer, increasing 12% from 2021 to 2022, on the heels of a 17% increase from 2020 to 2021.<sup>19</sup>

# 30% GGE

Industrial agriculture contributes around 30% of total greenhouse gas emissions, mainly from chemical fertilizer, pesticides and animal waste.<sup>20</sup>



**2020**



**2021**

The ag labor deficit in the US reached record levels in 2021. Purdue University reports 66% of employers experienced “some” or “a lot of difficulty” hiring adequate labor in 2021, up from 30% in 2020.<sup>17</sup>

# \$8.6 B

The UN reports the global population will grow to 8.6 billion by 2030, and 9.7 billion by 2050 — up 13% and 29% respectively. Demand for food and other ag products is projected to increase by 50%.<sup>21</sup>



# 18% Drop

Worldwide, the percentage of people who work in agriculture dropped from 44% in 1991 to 26% in 2020. <sup>22</sup>

# 58 Years Old

In 2017, the average age of the principal farm operator in the US was 58, up eight years from 1982. <sup>23</sup>

# 70%

Agriculture is estimated to account for over 70% of global water use. With food demands only rising, water use is expected to increase an additional 15% to meet this demand. <sup>24</sup>

With a 40+ year track record in innovation, Trimble Autonomy has what it takes to lead the way to greater efficiencies through enabling autonomous solutions that solve for today's agriculture challenges. Armed with a flexible, consultative approach, we empower customers like you to realize your autonomous potential on your terms. We'll walk with you every step of the way, to take you from where you are to where you want to be — with unparalleled accuracy, precision, positioning and timing.

Learn more at:

<https://autonomy.trimble.com/en/>

## 30%

Around 30% of global food loss occurs at the production and harvest stages, partially due to farmers not being able to complete harvests due to lack of available labor. <sup>25</sup>



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