

Agriculture Water Management, Surface Drainage and Grading

2D Land Leveling and 3D Land Forming



WHY
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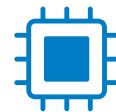
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Topcon Agriculture

High-precision hardware, software and data to bring you efficiency and enhanced productivity to every phase of the farming operation.





LANDFORMING

Why Landform

It's no mystery that water is essential to every farming operation. Research indicates field drainage has the greatest impact on yield relative to any other factor. It boils down to distribution uniformity, because crops require adequate and equal resources to thrive.

With global uncertainty in allocation, not to mention constant environmental and even political factors, farmers need proven solutions that maximize inputs and land sustainably. Landforming is the practice of manipulating soil to optimize water management and drainage. Modern solutions utilizing laser and GNSS (aka GPS) conform land to best suit operational demands. Technology is the foundation for an effective precision management strategy, from basic flat and single to advanced multi and variable-slope surfaces.



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Increase yield through design and uniformity

Landforming technology manipulates soil to better compensate for environmental factors and complement crop requirements. Through planning (surveying), design, and precision execution, farmers can optimize water management, improve drainage, and even increase arable land.

Solutions not only eliminate catastrophic issues such as flooding and excessive runoff, they promote even-resource distribution. Balanced inputs lead to uniform emergence and development, maximizing available water and reducing applications later down the crop cycle. Symmetry enables higher yields and reduced inputs.



Crop Optimized



Promote Uniformity



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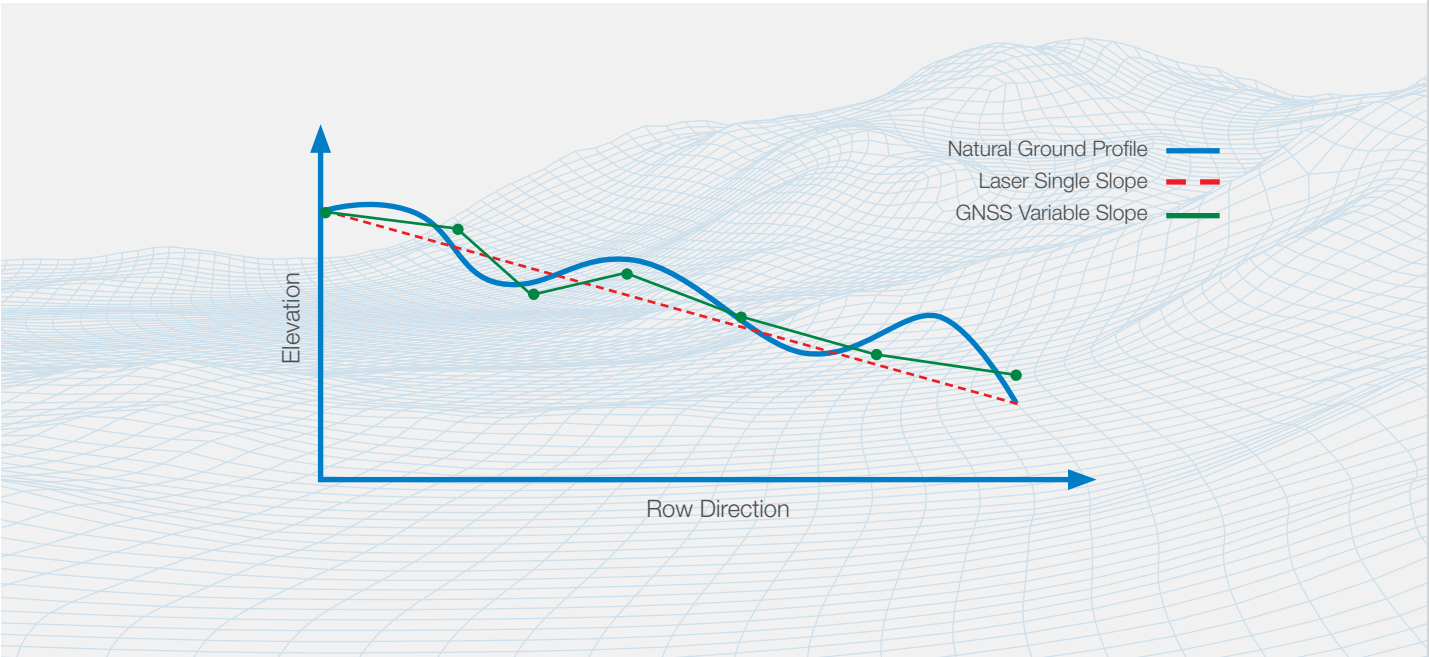
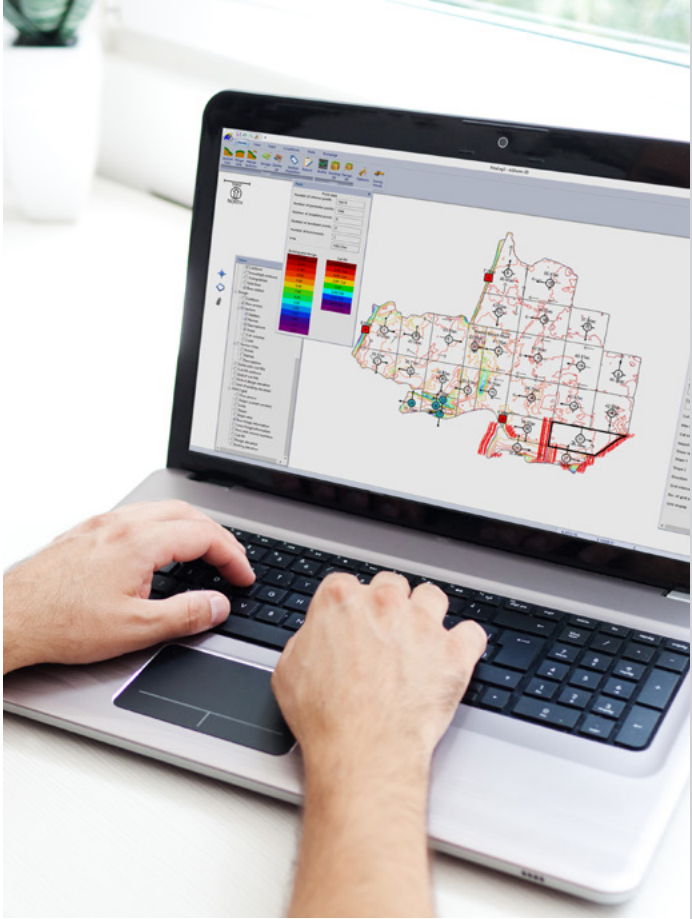
Reduce inputs through precision

While laser land leveling can be relevant in areas with impacted reception (such as canopy cover), satellite-based landforming brings entirely new input reduction benefits. It is easier to set up and operate for improved in-field efficiency, and solutions promote sustainable practices.

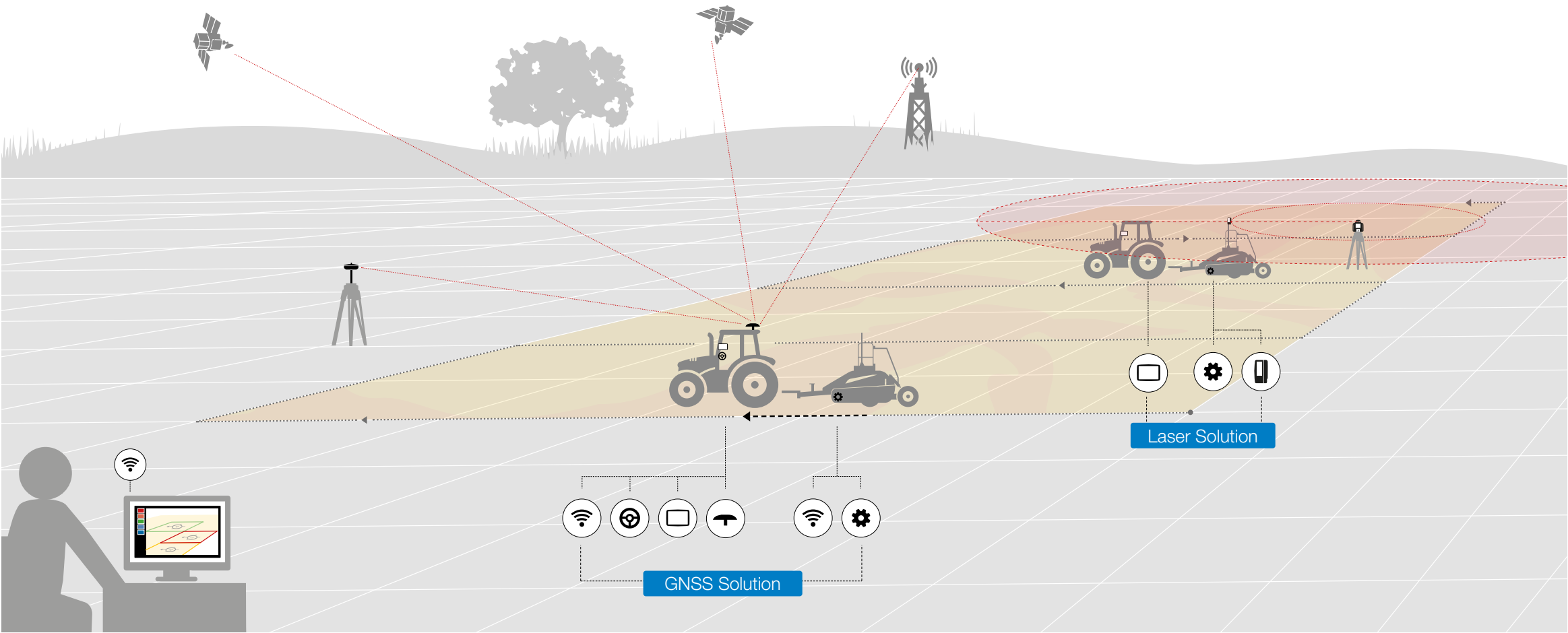
From basic flat, single- and dual-slope planar surfaces to innovative variable slope, satellite positioning enables optimized route planning. In landforming, that means moving the least soil possible, reducing fuel and machine maintenance. Limiting soil disturbance also retains fertility, which is essential to farming longevity.

GNSS Benefits

- 50%+ less soil moved
- Proactive (GNSS) versus reactive (Laser)
- Fertility maintained adhering to natural design profile



We offer Laser and GNSS Landforming Solutions



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2D Land Leveling

From basic flat to single-slope, Topcon 2D Laser Land Leveling provides proven automatic single scraper implement control, leveling to a defined elevation. The solution is ideal for smaller, more economical operations and basic applications including flat-plane crops and building foundations.

Laser technology can be useful in heavily covered areas (e.g., tree canopies) where satellite can't penetrate.



Featuring

Easy-to-use, proven laser technology

Flat, single- and dual- slope, single scraper control

No outside connectivity required

Universal scraper implement compatibility

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3D Land Forming

From basic flat and single-slope surfaces to advanced multi- and variable slope designs, Topcon 3D GNSS Land Forming offers fully customizable water management control. Comprising three key phases: survey, design, and execution, the solution can suit virtually any crop operation plus many niche applications, including ponds, building foundations and roads.

Operators can efficiently survey with proven base station and rover hardware. Data can be relayed via Bluetooth® to AGForm-3D design software to create tailored planar or variable slope designs. AGForm-3D offers unique patterns that move the least volume of soil possible, maintaining fertility and reducing inputs while optimizing water delivery and drainage. Easily execute by importing to Topcon X Family consoles (XD+ or X35), including a live positioning and cut/fill map on-screen. Tied to the MC-X1 controller and GR-i3F receivers, the custom AGForm-3D design is automatically executed through the field.

Featuring

Flat, single- multi-, variable slope, single scraper control

Complete survey, design, and execution package

Designs move minimal soil

Easy setup and operation. 24/7, dust or fog

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Easy survey. Smart design

Effortless execution

GNSS Landforming has revolutionized land leveling by streamlining workflows and enabling designs that just aren't possible through previous laser methods. Our surface drainage expertise is produced through decades worth of engineering research to understand optimized patterns based upon operational requirements. We offer an array of and continue to develop unique design algorithms.

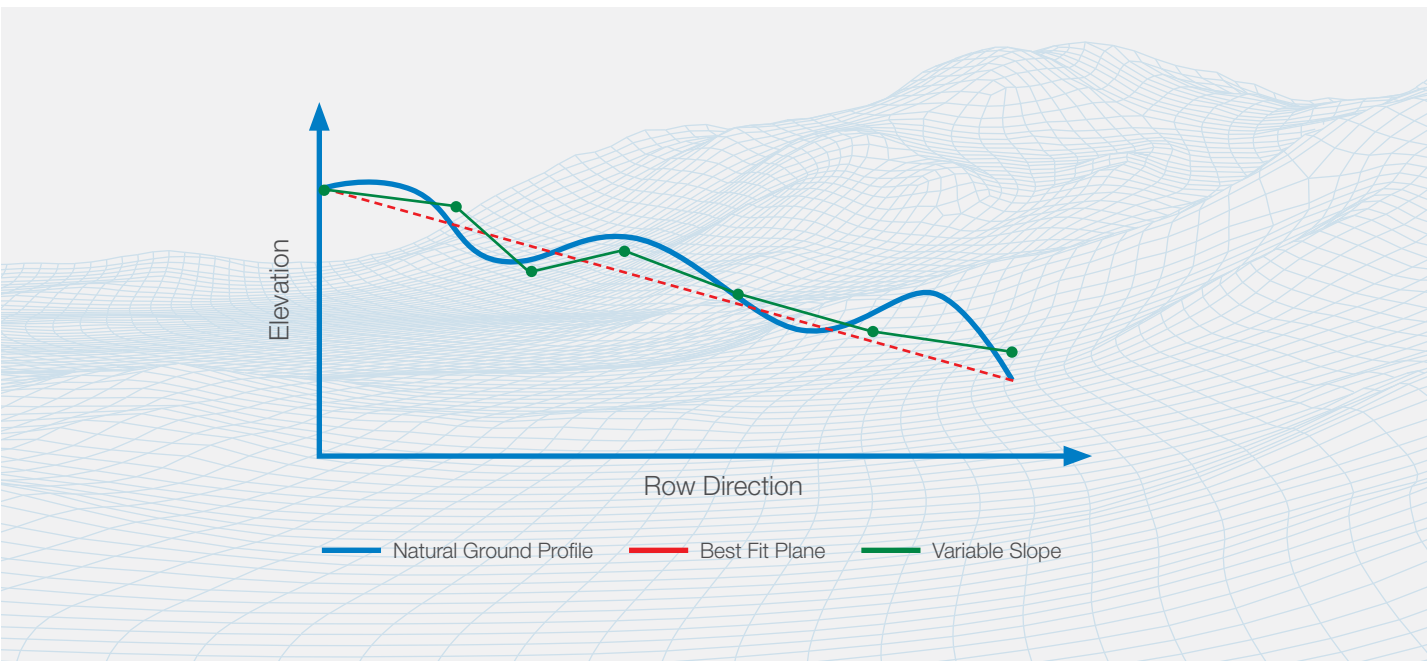
Our innovative survey and design software, AGForm-3D, allows farmers to go beyond simple planar designs to variable slope, complementing environmental and crop production factors. The designs not only allow for customized water management and drainage, they enable significantly less soil movement (i.e., only what's necessary) by retaining natural designs. That means fewer development inputs and better soil health for increased production.

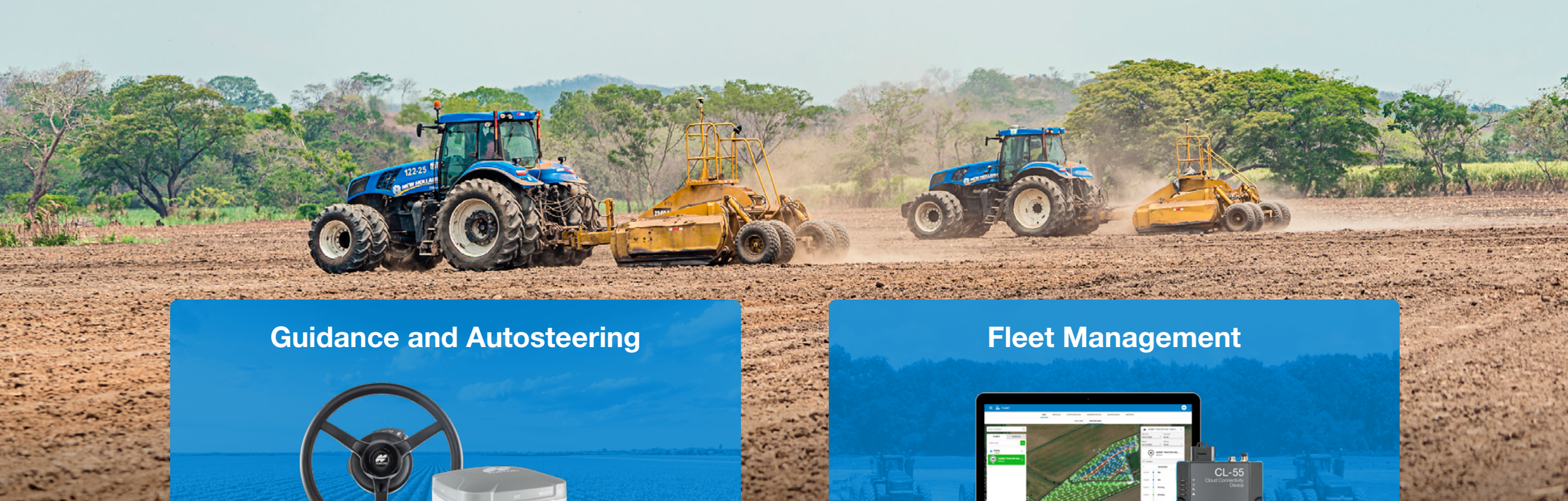


Planar
Flat, single, dual, multi, hinged



Variable Slope
Crop and environment complementary





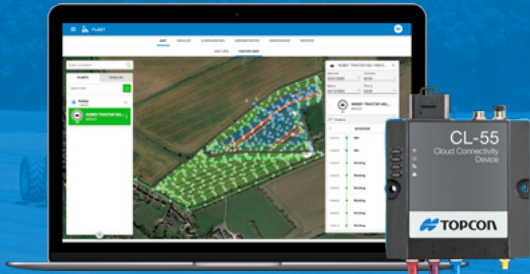
Guidance and Autosteering



Guidance is the key to accuracy and the heart of precision farming. We offer modular solutions to suit virtually any machine and operation.

Each farming operation may have differing accuracy requirements, which is why we offer a full range of correction services via Topnet Live network corrections or localized base stations. Whatever the application, choose flexible options to form the right solution for optimal reception, accuracy, and repeatability.

Fleet Management



Monitor and manage machines through TAP Fleet and CL-55 cloud connectivity device telematics. Beyond a powerful landforming solution to optimize water management, we can help track the benefits too.

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Suited for nearly all crops and many niche applications



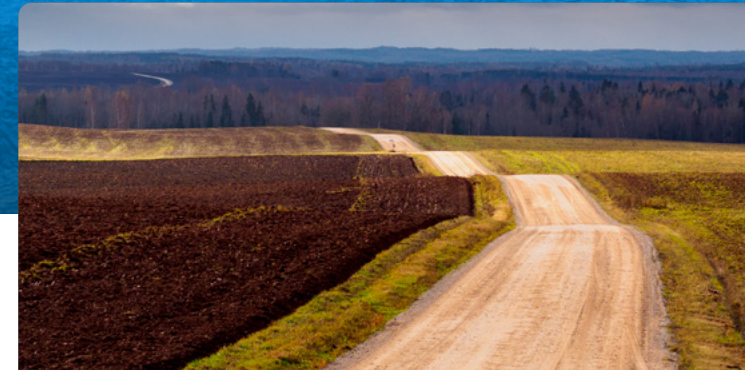
Commodity Crops

Corn, soybeans, wheat, cotton, rice, etc.



Specialty Crops

Fruit, sugar cane, vegetables, vineyards, orchards, etc.



Niche

Driveways, roads, horse tracks, building foundations, etc.

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Click on the image to watch a video.

Use case

Hacienda Solimar – 3D Land Forming Enabling Vertical Integration

Problem

Hacienda Solimar is a unique operation in Costa Rica focused on sustainable livestock management. Suffering from expensive third-party feed costs and low production on site, a solution was needed to allow continued expansion and scale livestock production profitably.

Solution = Topcon GNSS Landforming

- 1 Enabled vertical integration to produce own feed
- 2 Created arable land where crops wouldn't otherwise grow
- 3 Reduced soil movement and machine fuel consumed
- 4 Enhanced crop quality and quantity
- 5 Boosted livestock production

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Use case

Louisiana Contractor Reaps the Reward of 3D Land Forming

Problem

David Bader has been on the front lines of precision landforming and construction sitework for decades. Successful with laser technology in the early 2000s, he needed a way to better scale his services and guarantee reliable results through long working hours.

Solution = Topcon GNSS Landforming

- 1 Improved organization – All software consolidated into one PC
- 2 Improved efficiency; design software reduced overall passes
- 3 Reduced fuel and machine maintenance through design
- 4 Maintained fertility by moving less soil
- 5 Reduced worker fatigue with more reliable output

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Use case

Azucarera El Viejo - Boosting Sugar Cane Production in Costa Rica

Problem

Azucarera El Viejo leads the Costa Rica rain-fed sugarcane industry, with roughly one million tons annually. Laser land-leveling survey and design were deemed too inefficient for such a large operation – they needed an alternative.

Solution = Topcon GNSS Landforming

- 1 Reduced labor with GNSS survey and design software
- 2 Increased production with customized variable slope design
- 3 Reduced fuel and maintenance, moving 50% less soil compared to the previous laser approach
- 4 Improved efficiency with easy-to-use workflows

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Use case

Ingenio Taboga - Expanding Capabilities in Rice and Sugarcane

Problem

Ingenio Taboga, a large sugar producer in Costa Rica, began land leveling their rice ground with our laser solution in the 1980s. After the success of field leveling rice, Taboga began to level their sugar cane fields. Although field leveling was improving production, too much labor was spent on survey and design.

Solution = Topcon GNSS Landforming

- 1 Reduced labor through GNSS survey and design software
- 2 Improved furrow development and production by integrating autosteering
- 3 Ensured quality through post-survey verification

Click on the image to watch a video.



Empowering Your Work

As a worldwide leading developer and manufacturer of precision positioning workflow solutions, we help the people who build and feed the world work smarter and faster.

The technology we provide brings increased accuracy, saves time, boosts productivity and efficiency, and lowers expenses, all resulting in greater profitability for you.

Seemingly impossible jobs can be possible because we empower you to do more with less. Projects can be completed with fewer skilled workers with less re-work.

SPEED TO MARKET | GLOBAL NETWORK | EXPERIENCED OEM TEAM

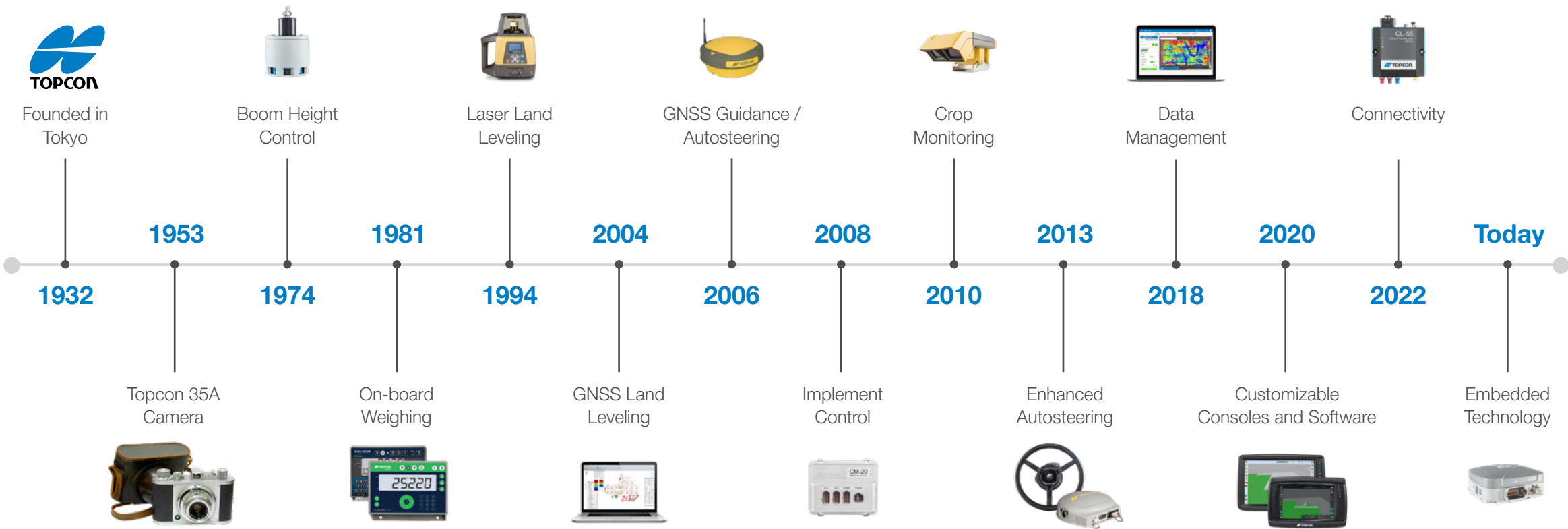
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A History of Topcon Corporation in Agriculture



Note: displays current product images in reference to when development began.

Unleash Your Potential

We provide innovative yet intuitive solutions that integrate high-precision measurement technology, software, and data for the construction, surveying, and agriculture industries. By embracing our solutions, our customers can:

- Accelerate infrastructure creation and repairs, ensuring safety and cost-effectiveness
- Efficiently gather and handle vast amounts of data, reducing field time
- Maximize crop yields and returns, all while minimizing environmental impact and preserving natural resources.

We're here to make complex tasks easier – so you can work smarter, not harder.



Topcon Training Center,
Livermore, CA

Topcon Technology
Roadshow Truck

Topcon Positioning Systems Headquarters,
Livermore, CA

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4900+ Employees | nearly 3500 Patents

Global Network

With an extensive worldwide network of corporate offices, R&D centers and technical groups, we have an unmatched capability to assist any manufacturer, no matter where they are located, with fully integrated machine automation solutions. This also positions us to create programs to assist and support dealer networks, directly or through extensive training programs.

Experienced OEM Team

Our experienced OEM team knows what questions need to be answered first and the potential pitfalls to be avoided along the way. Their first objective is to make sure our technology is the right fit for your application and be your partner every step of the way.


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Easily Integrated Modular Technology




Guidance

Consoles


Steering



ACU-1




EHi Valve



Correction Services

GNSS Receivers

Base Stations & Reference Stations Network




Digital Farm Management

Data Software

Connectivity

Click a product block to be directed to the respective web page.

Customizable Solutions for Every Application



Soil Preparation

Landforming and Drainage

Tillage

Strip Till Control

Hardware

MC-X1 / GR-i3F
Controller/Receiver

GC-35
Controller/Display


HCM1
Controller

UC7
Ultrasonic Sensor

Software

AGForm-3D
Survey/Design

ISO BUS



Seeding

Seeding

Planting

Hardware

Apollo CM-40
Controller

Artemis AS-1X
Controller


MFDC 100
Seed Drill Monitor

CAN Motor

Software

ISO BUS

ISO BUS



Crop Care

Spreading

Spraying

Crop Monitoring

Hardware

SM-1X
Controller

SL2 Convertor
(Weigh)

CM-40 / CM-20
Controller

HCM1
Controller

CM-20
Controller

LMS-20
Sensor

H2 Spraymaster

UC7
Ultrasonic Sensor


Software

ISO BUS

ISO BUS

Click a solution/product block to be directed to the respective web page.

Customizable Solutions for Every Application




Harvest


Yield Monitoring

Grain Cart Weighing


Hardware




YM-3 Controller




Optical Sensor




YM-2 Controller



Moisture Sensor




Load Sensor




Load Sensor


Software



ISO BUS



ISO BUS




Weighing

Material Handling / Onboard Weighing


Universal Weighing

Livestock Weighing


Hardware




Pressure Sensor




SL2 Converter




Indicator SW4600EID




Indicator Cab Control App




Weighing Platform




Load Sensor



Pressure Sensor




Load Sensor




Feed Management

Feed Mixing


Hardware




Display / Data Transfer Digi-Star FD1 / CL-55




Indicator EZ 2810BT / 3410B




Indicator TMR 3610 / 4610




Indicator TST 7600



ERM Wi-Fi Module




SL2 Converter



Load Sensor

Software



TMR Tracker

Click a solution/product block to be directed to the respective web page.

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Committed to Sustainability

The work we do as an organization complements and supports the sustainable development goals adopted at the UN Summit in 2015.

“The Sustainable Development Goals are the blueprint to achieve a better and more sustainable future for all. They address the global challenges we face, including poverty, inequality, climate change, environmental degradation, peace and justice.”

To learn more about our commitment to sustainability visit:
topconpositioning.com/sustainability



Zero Hunger

Our tools improve the management and measurement of cropping areas and sustainable agriculture. Through automation, we are helping create more productive crops and increase harvests, which leads to an improved food system and less food shortages.



Industry, Innovation and Infrastructure

We help farmers be more productive through proven, innovative agricultural precision measurement technology, resulting in increased productivity, larger yields and reduced labor.



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topconpositioning.com

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