

QMS MONITOR FARM · NORTH-EAST SCOTLAND

AI on the farm

What it is, what's coming, and what it could do for Bruce Irvine, Banff & Buchan Monitor Farmer

Jim Wilson · Farmer and MD, SoilEssentials

soilessentials
precision farming solutions

MONITOR FARM Scotland

FARMING SMARTER

BEFORE WE START

Hands up if you've ever asked a chatbot a question

Keep it up if you've asked your phone something out loud.

Here's what could be in it for you:

Less office

Create forms, emails and paperwork in minutes. Understand the small print in contracts.

Know your numbers

Ask questions of your own grain weights and cattle kill sheets, quotes and field records.

A level field

Your buyers and suppliers already use it. Time you did too.

soilessentials
precision farming solutions

01

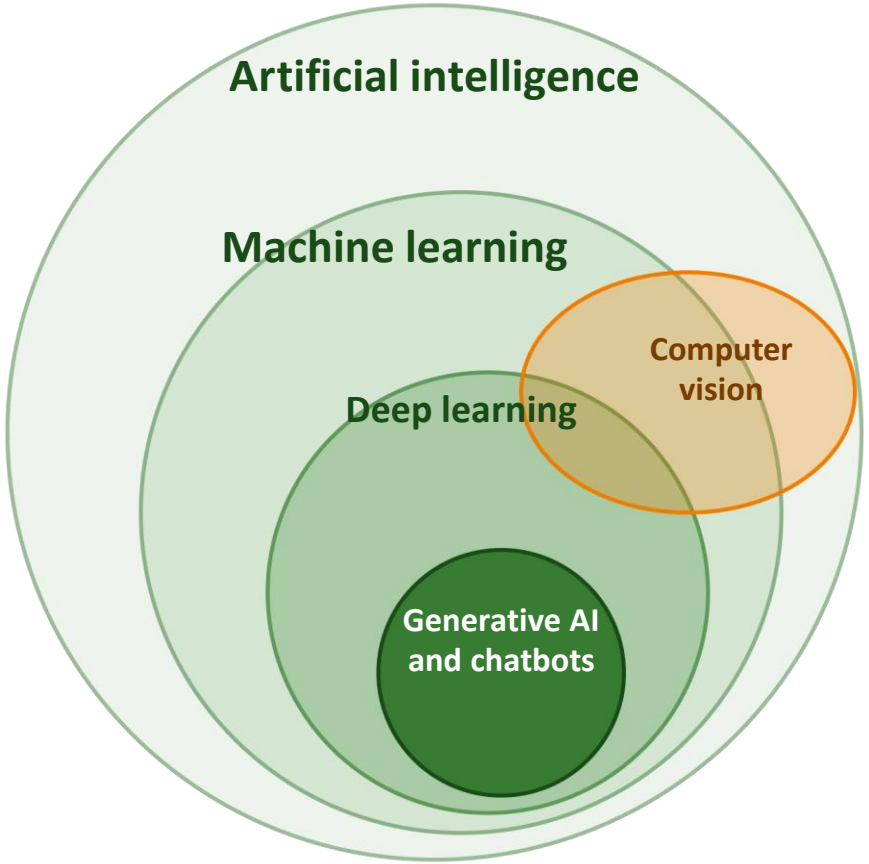
THEME 1 OF 4

What AI actually is

soilessentials
precision farming solutions

WHAT AI IS

AI is a big umbrella, not one tool



AI: any machine doing something that looks clever

Machine learning: learns from examples, not from rules

Deep learning: machine learning with lots of layers

Generative AI: writes, draws and answers back

Computer vision: makes sense of photos and video

soilessentials
precision farming solutions

WHAT AI IS

Until now, machines followed our rules. AI generates its own rules

Up to now: follows rules

Autosteer

GPS says where you are. It holds the line by rules an engineer wrote.

Also: trough alarms, spreadsheet formulas, feeder timers

Now: learns from examples

Camera weighing

Shown thousands of cattle and their weights, it worked the rule out for itself.

Also: weed-spotting sprayers, lameness cameras, chatbots

How to tell if something is AI: did somebody write the rule, or did the machine learn it?

WHAT AI IS

A machine learns the way a new potato roguer does

Lots of examples

Walk enough drills and you know blackleg on sight. A machine needs thousands of photos.

Being corrected

Someone points out the ones you missed. Machines improve from their mistakes the same way.

Learn once, use daily

Learning takes seasons. Spotting a rogue plant takes a second. Same for the machine.

Rubbish in, rubbish out

Learn on one variety and you'll miss rogues in the next. Poor examples make a poor machine.



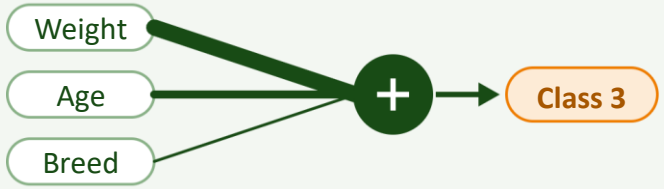
soilessentials
precision farming solutions

WHAT AI IS

How a machine “learns”

Practice, feedback, then an exam on animals it’s never seen.

1 · One neuron



Each clue gets a weight for how much it counts. Add up, make a call.

2 · A deep network



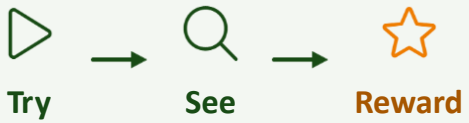
Neurons in layers, like a grading team. “Deep” just means lots of layers.

3 · Hill climbing



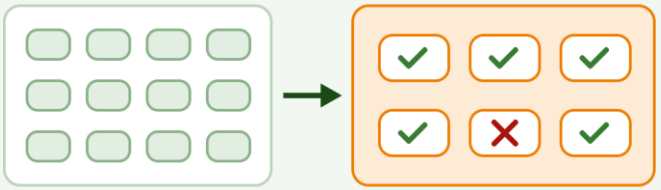
Nudge the weights. More right? Keep it. Worse? Step back. A climb in fog.

4 · Learning by reward



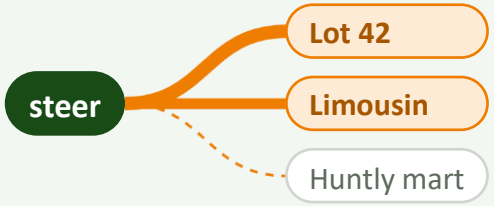
Try, see, reward, repeat a million times. Like training a sheepdog.

5 · Testing on new animals



The real exam is animals it’s never seen. Cramming (overfitting) fails here.

6 · Transformers



Learns which words matter most, like skimming a sale catalogue.



WHAT AI IS

Computer vision: the camera does the looking

- Weighing from a photo
- Spotting lameness
- Body condition scoring
- Counting stock
- Reading ear tags
- **Spotting docks: SKAi**

Same trick in your pocket: point your phone at a weed, a part or a warning light and ask.

soilessentials
precision farming solutions

WHAT AI IS · COMPUTER VISION AT WORK

SKAi: a sprayer that only hits the docks



Trained like a rouger: thousands of dock photos, and it keeps learning in the field.

- **See:** HD cameras scan the grass as you drive
- **Decide:** AI boxes each dock and scores how sure it is
- **Spray:** only the nozzle over the weed fires
- **Map:** an as-applied map proves where it went

95%
less herbicide, at best

~80%
average herbicide saving

~10%
of a field typically sprayed

Docks and thistles in grass, volunteer potatoes in brassicas, weeds in onions

soilessentials
precision farming solutions

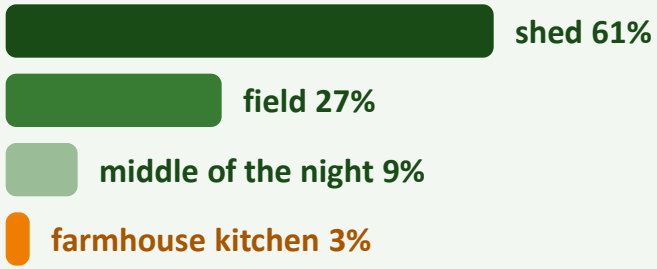
Sources: SoilEssentials; Farmers Weekly | AI on the farm

WHAT AI IS · LARGE LANGUAGE MODELS (LLMS)

From seeing to talking: chatbots are very good guessers

You'll have heard of: **ChatGPT** · OpenAI | **Claude** · Anthropic | **Gemini** · Google | **Copilot** · Microsoft

"The heifer calved in the …"



Illustrative numbers. It picks a likely next word, then the next, then the next.

- **It's read a vast library** and learned how words usually follow each other.
- **Transformers** let it spot which words matter, like lot, breed and weight in a catalogue.
- **Confident isn't correct.** Treat it like a bright new employee: useful, but check its work.

soilessentials
precision farming solutions



WHAT AI IS · USING CHATBOTS TODAY

Talk to it. Show it.

Fault finding

Photograph the warning light. Ask what it means and what to check first.

Read the small print

Snap a feed label or a vet bill. Ask it to explain it, check it and compare it with last time.

soilessentials
precision farming solutions

LLMs are growing up: from chatbot to agent

Same ChatGPT, Claude, Gemini and Copilot underneath. New job: they don't just answer, they **act**.

Chatbot

You ask. It answers. You do the rest.

"What should I ask the feed rep about this quote?"

Early days: you had to learn the magic words. Get the prompt wrong and you got rubbish.

Agent

You set the job and the rules. It does the legwork.

"Get three feed quotes, compare them per tonne of protein and draft the order for me to approve."

Now: just tell it the job in plain English, like you'd tell a new farmworker.

It uses tools: email · web · spreadsheets · forms · your records

soilessentials
precision farming solutions

WHAT'S COMING

Try it. No use? Try again in six months

Tool	Good for	Where it is now
AI assistant on your phone	Questions, letters, forms, summaries	Useful now
Voice mode	Hands-free in the cab or the shed	Useful now
Photo identification	Weeds, parts, warning lights	Useful now
Spreadsheet and kill-sheet help	Spotting trends in your own figures	Useful now
Call and meeting notes	Never lose what the vet said	Worth a look
Specialist ag apps	Herd, grass and finance records	Worth a look
Agents that spend money	Buying and selling unsupervised	Not yet

It's moving fast. What's no use today could be brilliant by next spring, so keep trying.

soilessentials
precision farming solutions

WHAT'S COMING

AI is speeding up all farm tech, not just AI kit

AI inside or not, AI helps build it: writing code, testing designs, sorting data. New kit reaches you faster.



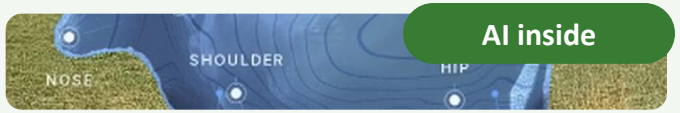
Virtual fencing

AI helps write and test the collar and app software



Health collars

AI sorts thousands of hours of cattle behaviour data



Camera weighing

From a weigh crate to a phone app, far quicker



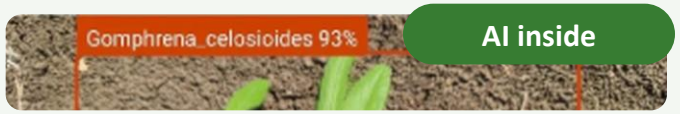
Grass from space

AI fills the cloudy gaps and speeds up the number crunching



SKAi spot sprayer

Machine vision builds the AI models that detect the weeds



Phone ID apps

New weeds and pests added in weeks, not seasons

soilessentials
precision farming solutions

IN THE NEWS

Farmers are already doing it

FARMERS WEEKLY · OCT 2026

AI agent fills in farmer's SFI application while he's in London

AGWEB · APR 2026

Broken planter? She asked ChatGPT for the part number

BRITISH FARMING AWARDS · OCT 2025

Herd app's AI assistant answers "what do my cattle weigh?"

STV NEWS · AUG 2024

Scottish AI farm projects share £1.2m

1 in 2

FARMING UK · SEP 2025

UK farmers now use AI every week. Almost 4 in 10 use it daily.

FARMERS WEEKLY

Camera sprayer finds the docks and sprays just 10% of the field

FARMING UK · FEB 2024

Thermal camera AI spots lameness before the farmer can

AGWEB · APR 2026

Farmer talks his decisions through with AI from the truck

AGWEB · APR 2026

Years of soil data fed in to double-check fert plans and tank mixes

IRISH FARMERS JOURNAL

Young dairy farmer finds a new income stream in AI spot spraying

YOUR STORY?

Who here has already tried it? Hands up.

soilessentials
precision farming solutions

Headlines paraphrased. Sources: Farmers Weekly, AgWeb, Farming UK, STV, Herdwatch, Irish Farmers Journal

02

THEME 2 OF 4 · 10 MINUTES

What’s coming down the road

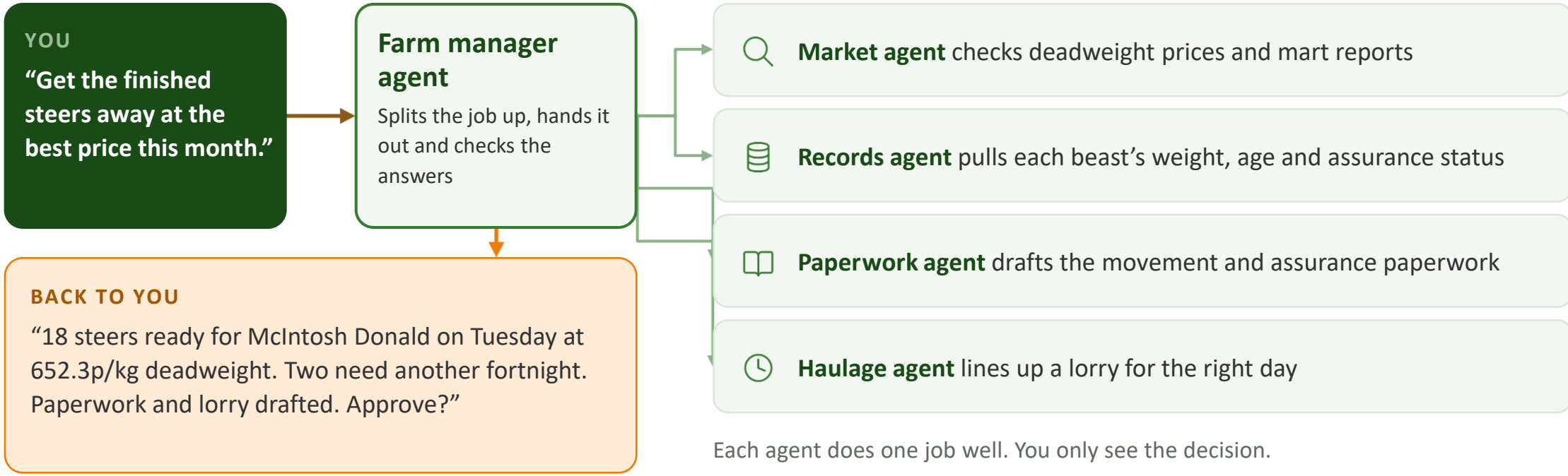
Some of it’s already in the yard

soilessentials
precision farming solutions

WHAT'S COMING · THE NEXT STEP

Agentic AI: from one agent to a team of agents

Earlier: one agent does one job → **Next: a team of agents tackles one goal together**



Each agent does one job well. You only see the decision.

soilessentials
precision farming solutions

WHAT'S COMING · WALMART × PACTUM

How a team of agents does a buyer's legwork

An **agent** is AI given a goal, some tools and firm limits. Several agents pass the work along, like a team.



68%
of suppliers approached agreed a deal

1.5–3%
average saving on the spend negotiated

35 days
average payment terms won

11 days
average to close, not weeks

3 in 4
suppliers preferred it to a human

On the farm: the same set-up could buy feed, fert and parts deal by deal, inside limits you set.

soilessentials
precision farming solutions

WHAT'S COMING · INSURANCE UNDERWRITING

Insurance: agents do the legwork, the underwriter makes the call

Submission arrives
A broker sends in a business to insure

→

INTAKE AGENT
Reads it all
Pulls the facts out of forms and emails

→

DATA AGENT
Gathers the rest
Checks in-house records and outside data

→

PRICING AGENT
Assesses and prices
Scores the risk and drafts a price

→

HUMAN UNDERWRITER
Makes the call
Decides anything that needs judgement

All inside the insurer's own authority rules, with every step recorded for the regulator.

3–5 pts
better loss ratio

60–99%
less time from quote to cover

14% → 70%
insurers using it, now vs 2028

$40m a year
extra profit per $1bn of premium

One platform (hx) already runs this across $75bn+ of premium for Aviva, Allianz, Sompo, Beazley and Markel.

WHAT'S COMING

Why companies are doing it

The long tail

Hundreds of small jobs nobody has time for

People set the rules

Agents work inside limits you choose

Every step recorded

A full paper trail, without the paper

Never clocks off

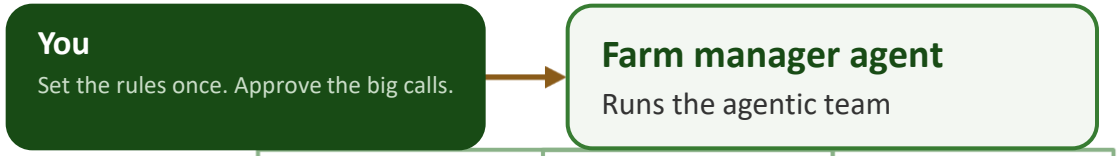
Works at 3am, Sundays and harvest time

Your buyers and suppliers are already doing this.

soilessentials
precision farming solutions

WHAT'S COMING · FROM ONE JOB TO A STANDING AGENT TEAM

Your farm office agent team: set the rules once



Buyer agent

Gets and compares quotes for feed, fert and parts

YOUR RULE

"Never order over £500 without asking me."

Seller agent

Watches prices and marts, drafts sale options

YOUR RULE

"Assured buyers only. I approve every sale."

Assurance agent

Fills in assurance forms from your records

YOUR RULE

"Never tick a box you can't prove. Flag the gaps."

Bookkeeper agent

Movements, invoices and VAT prep

YOUR RULE

"Match every invoice to an order. Query anything odd."

Comes back to you: anything outside your rules, anything new, and anything that spends money.

soilessentials
precision farming solutions

WHAT'S COMING

Fancy your own office team? Try it yourself

1

Try it

Do the job by hand in a chat, say comparing two feed quotes.

→

2

Write it down

Note the steps and your rules: protein per £, delivery, terms.

→

3

Save it

Keep it as a template you reuse every time.

→

4

Let an agent run it

It does the legwork. You check and sign off.

→

5

Automate

The routine bit runs itself.

Golden rule: **you** still approve anything that spends money.

soilessentials
precision farming solutions

WHAT'S COMING · A VOICE IN THE CAB

Someone to talk to, in your own words

Talk like a person

Voice is where this is heading. Just speak to it, hands-free, in the cab or the shed.

Company at 5am

Farming can be lonely. Someone to talk a problem through with when there's nobody else about.

Not a neighbour

It won't replace a neighbour or a pint. But it's there when they're not.

soilessentials
precision farming solutions

03

THEME 3 OF 4 · 7 MINUTES

Risks and rewards

The good, the bad and the confidently wrong

soilessentials
precision farming solutions

RISKS AND REWARDS

The rewards

Time

Less paperwork, fewer evenings in the office

Money

Hidden costs found, better prepared to negotiate

Know-how

Your own figures explained, and the right questions to ask

Fair fight

The same tools as the folk across the table

Head space

Less admin stress, less isolation

The honest caveat: AI helps you prepare. It doesn’t guarantee a better price.

soilessentials
precision farming solutions

RISKS AND REWARDS

The risks

Confidently wrong

Always check figures and regulations.

Your data

What you upload, where it goes, and who can use it.

Scams and fakes

Cloned voices, fake invoices, “the bank” on the phone.

Losing the knack

Lean on it too hard and your own judgement gets rusty.

Bills and broadband

Subscriptions add up, and rural signal doesn’t always play ball.

Agents with a chequebook

Anything that spends money needs tight limits and your OK.

Watch what you upload. Free and personal plans can use your chats to train the AI unless you switch it off. Business plans keep your data out of training.

RISKS AND REWARDS

Four rules of the road

1 **Prepare, don’t decide**

It does the homework. You make the call.

2 **Check what matters**

Anything with money or the law attached.

3 **Keep secrets secret**

No bank details, passwords or other folk’s personal data.

4 **Start small**

One job this week. Build from there.

RISKS AND REWARDS

The real risk is standing still

The folk across the table already use it. AI can even up the gap, or widen it.

04

THEME 4 OF 4 · 11 MINUTES

How AI could help Bruce

Including a live demo, signal permitting

soilessentials
precision farming solutions

BRUCE'S FARM · LIVE DEMO

Over to Bruce: ask Claude out loud

Live · voice mode

1 · Jim

Set the scene

"Claude, I'm here with Bruce, a beef farmer in the north-east of Scotland. How could you help him on his farm?"

2 · Bruce

His own question

Whatever's on his mind. Stuck? "How could you help me get my steers finished on time?"

3 · The room

Push it a bit

"What's the catch?" Or: "Now say that the way a Buchan farmer would."

Push-to-talk on, volume up, hotspot ready. Signal drops? Read out the answer from your rehearsal and carry on.

soilessentials
precision farming solutions

IF YOU REMEMBER ONE THING

AI won’t farm for you. But it’ll do the office work, explain the numbers and put you on a level footing at the negotiating table.

Jim Wilson · jim@soilessentials.com · www.soilessentials.com

soilessentials
precision farming solutions

FARMING SMARTER

Questions?

Fire away. No question too daft.

Jim Wilson | jim@soilessentials.com | www.soilessentials.com

soilessentials
precision farming solutions

FARMING SMARTER