FIELD LANDINGS

The BGA Safety Team considers some of the hazards when landing away from the airfield

Field landings account for nearly a fifth of all UK gliding accidents, almost a quarter of serious and minor injuries, and a similar fraction of written-off and substantially damaged gliders. In the past 50 years, 14 pilots have died and over 70 been seriously injured when field landings went wrong. Fifteen gliders per year have been the subjects of expensive insurance claims after field landing accidents. Field landings are also responsible for over half of the gliders written off in competition flying, in which they also account for two-thirds of pilot injuries and serious or minor aircraft damage.

The most serious accidents occur before the glider reaches the field. Spins while manoeuvring for a field have killed eight pilots and seriously injured 20, and combined with stalls have led to the destruction of over 80 gliders. Fatalities and injuries have also resulted from colliding with trees, posts and other obstacles on approach into the field.

The ingredients of a safe field landing are hardly new, but there's a lot to consider [1-4].

LANDABLE TERRAIN

A safe field landing is possible only if a suitable field is available, and plenty of gliders have been damaged when the only option was a controlled crash into forest,

rough hillside or an inadequately sized field, or ditching into a lake or the sea. Some areas offer plenty of choice, but it's important to monitor the landscape and route to remain within range of landable terrain. Mountainous regions and, overseas, swathes of orchards or vines, may offer so few possibilities that landable fields need to be identified as part of pre-flight planning.

IDENTIFY OPTIONS EARLY

As you lose height or the terrain becomes less landable, and the number of landing options reduces, start to identify potential landing areas, and update your selections as you progress en route.

Bear in mind that not all features may be apparent from altitude, so it's good to have several possibilities. This will ensure you have good options and reduce the workload and anxiety if you need them.

FIELD SELECTION

The criteria used to choose a field for landing are commonly remembered as the seven Ss:

- **Surface wind**

The wind direction and strength determine the landing distance required, its ideal orientation, and the acceptability of other orientations, as well as the likelihood of wind gradient and turbulence. The surface wind may be quite different from that at altitude; smoke, crop ripples, wind shadow on water and wind turbines provide good indications.

- **Size and Shape**

The field needs to contain a landing run of adequate length and appropriate orientation, bearing in mind that clearing a high hedge, trees or other boundary obstacle will move your landing point well into the field.

- **Slope**

A significant slope can make landing more difficult and hazardous. A down-slope will require a longer landing run and may even make landing impossible. An up-slope will require a higher round-out speed to avoid a heavy landing. A sideways slope will mean a tricky banked landing to avoid a groundloop, and risk a cartwheel if a wingtip touches the ground while the glider is still airborne.

Slope can change the pilot's perception of the approach, so it's crucial to check the glide path properly relative to a reference point. After landing, the slope may cause the glider to run away once the brake is released.

- **Surface and crop**

Plough furrows can be deep, so landings should be along them. Pasture can be rough, particularly when cattle have grazed on soft ground. Rabbit holes, stones and other debris can cause glider damage and, if struck during round-out, can cause a heavy or bounced landing, with the risk of spinal injury.

It's helpful to be able to assess arable crops from the air [5,6]. Standing crop and long grass can easily catch a wing resulting in a groundloop or control surface damage. Gliders are not designed for groundloop

forces, which can snap tail booms and damage tailplanes. Rounding out above crop level will end in a heavy drop to the ground.

● **Stock and obstacles**

Collisions with livestock commonly kill the animal and damage the glider. Even if a clear landing run is available, curious livestock can subsequently destroy the landed glider. Racehorses are easily spooked and may be more valuable than your insurance will cover.

Fields may contain farm equipment, vehicles, agricultural materials and other obstacles. Walkers can appear suddenly, particularly in parks and playing fields.

● **Surrounds**

Colliding with a telegraph pole, tree or other obstacle on approach to a field is the second greatest cause of field landing fatalities and serious injuries, and one of the major causes of airframe write-offs. It's crucial to spot such obstacles in time to avoid them, and ideally in time to plan for a different field if needs be. Last-minute manoeuvring has resulted in numerous serious accidents.

A major difficulty is that wires and poles are too thin to be seen from afar and often coincide with hedges and tree lines. Their presence can sometimes be apparent from other features, or deduced by thinking about where they're likely. There's some excellent online guidance to help you spot them [1,3,4].

HEIGHT

Your altimeter won't tell you your height above the field so, unless your moving map has detailed topographical data, you'll have to judge all heights by eye. Field sizes and slopes can affect your height perception. Fortunately, the exact height doesn't matter as long as it's plenty for a safe circuit.

BE DECISIVE AND RESOLUTE

Many accidents begin when the pilot leaves it too late to choose a field or decide to land. Once you've decided, be firm, and avoid the temptation of low-level lift. Extra height may be needed if you plan to fire up a turbo [7].

Don't try to stretch a final glide in the hope that conditions will save you. This is another time when knowledge of the fields around your home airfield could be useful [8].

Whatever you do, don't just press on 'hopefully' [9] in a state of denial.

CIRCUIT

A good circuit will get you to the right place for a good approach into your chosen field, and it's worth sticking with the way you're used to doing it. However, nobody's going to mark you on it and there should be no other aircraft or winch cables to deal with, so you can precede your circuit with a further inspection of the field, keeping it in sight and evaluating it from a range of angles. There's a great tendency to cramp field circuits, sometimes leading to emergency manoeuvres when pilots decide they're too high: give yourself space and use airbrakes at any time if required. Check your approach relative to your reference point once the approach is stable.

'WHATEVER YOU DO, DON'T JUST PRESS ON HOPEFULLY IN A STATE OF DENIAL'

Undershooting and overshooting can lead to serious injuries, so fly accurately and allow for wind gradients. If you can't avoid a stone wall, don't risk a stall hopping over it: groundloop and avoid a direct impact.

FLY THE GLIDER!

Too many pilots have died or been injured in spins while in circuit to a field landing. The unusual, uncertain landing area can cause anxiety, workload is high, and there could be wind gradients or turbulence, so the risks particularly when manoeuvring resemble those for low, unplanned turns [10]. It's crucial to maintain airspeed, monitor attitude, and look over the nose while rolling. In hilly areas there may not be a convenient horizon.

PRACTICE

Prior preparation helps, as always. Practise field landings with an instructor in a motor glider or in a corner of your home airfield. Assess fields from the ground as you explore the countryside, and from the air whenever you fly.

Cross-country flying is the principal object of our sport, and field landing is an inherent risk. We can never be sure of our assessment of the field surface, or that we've spotted all the wires and other obstacles on approach and on the ground, but with early thinking, careful assessment and a focus upon flying the glider, it should be possible to avoid the most serious injuries and greatly reduce the likelihood of damaging your glider.

Tim Freegarde and the BGA safety team

■ There's some great advice on the BGA website [1,2] and other online briefings [3,4].

[1] BGA, Field landing
https://tinyurl.com/flyright2535

[2] BGA, Field landing safety briefing (2016)
https://tinyurl.com/flyright2536

[3] P Ruskin, Cross country & field landings
https://tinyurl.com/flyright2537

[4] J Bridge, Field selection & landings
https://tinyurl.com/flyright2538

[5] M Cuming & J Staley, *Spot your crop for the drop, S&G* (April/May & June/July 2003)
https://tinyurl.com/flyright2539
https://tinyurl.com/flyright2540

[6] A Hatton, Field selection for glider pilots (archived 2011)
https://tinyurl.com/flyright2541

[7] *Trouble with turbos, S&G* (Aug/Sept 2021)
https://tinyurl.com/flyright2542

[8] *Aerotow options, S&G* (June/July 2023)
https://tinyurl.com/flyright2543

[9] *'Hopefully' is not an option, S&G* (Oct/Nov 21)
https://tinyurl.com/flyright2544

[10] *Inadvisable turn, S&G* (Feb/Mar 2024)
https://tinyurl.com/flyright2545

■ All previous 'Fly Right' articles are available from the *S&G* website.
See: *www.sailplaneandgliding.co.uk/safety-articles*
which may be accessed using the QR link below.