Westcountry Rivers Trust

Water Net Gain – T4.1 Willingness to Accept Study

Results and Methodology

Westcountry Rivers Trust is an environmental charity established in 1995 to restore, protect and improve the rivers, streams, and water environments in the region for the benefit of wildlife and people.

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Executive Summary

Background and Methodology

This Water Net Gain (WNG) farmer survey was conducted between September 2025 and January 2026 to understand farms' water resilience challenges and opportunities, and to assess farmers' attitudes toward participating in a Water Net Gain scheme. A total of 109 responses were collected across England: 63 through in-person interviews and 46 through an online survey platform. The majority of respondents were distributed across four key catchment areas, with particular focus on the South-West and especially the Tamar catchment (Westcountry Rivers Trust), the Colne in Essex (Essex and Suffolk Rivers Trust), the Idle (Trent Rivers Trust), and the Downholland and Dean (Mersey Rivers Trust).

Key Findings

Water Security and Resilience

Water availability represents a serious concern for farmers, though it ranks below weather extremes (61%), price volatility (58%), and funding uncertainty (53%) as primary business challenges, with 33% identifying water availability as a key concern. Nearly 60% of respondents have experienced water shortages in the past, with one-third reporting economic impacts including reduced crop yields, abandoned plantings, and restricted irrigation.

Farm type influences both the severity of water constraints and perceived priority of water resource challenges for the farm business. Arable farmers experience more acute current constraints and greater economic impacts from water shortages, while livestock and mixed farming enterprises express greater concern about future availability. Water source diversity also varies by sector: Arable operations rely more heavily on surface water and groundwater abstraction to meet large seasonal demands, while livestock farmers predominantly use mains water for drinking water requirements.

Approximately 40% of respondents lack alternative water sources, indicating vulnerability to supply disruptions. This limited resilience is compounded by poor water consumption monitoring: Nearly half of respondents cannot quantify their water use, presenting substantial challenges for water resource planning and scheme design.

Flooding and Dual Water Challenges

Three-quarters of respondents (76%) experience flooding or surface water runoff problems on their farms, including waterlogged fields, river flooding, farmyard runoff, and external water sources overwhelming drainage systems. Critically, analysis revealed that farms facing water scarcity constraints also commonly experience flooding issues, creating clear potential for Water Net Gain solutions that address both challenges simultaneously by capturing excess water during wet periods for use during dry periods.

Abstraction Licensing and Collaborative Approaches

While most respondents do not require abstraction licenses (primarily due to mains water use or abstraction below licensing thresholds), those who do hold licenses demonstrate higher awareness of water availability challenges and regulatory developments. Licensed abstraction volumes range from 18,250m³ to 1,750,000m³ annually.

Awareness of Environment Agency proposals to modify abstraction licenses varied considerably by catchment, from 85% in the Trent RT area to only 9% in the Westcountry. The high awareness in intensively farmed catchments with active Water Abstractor Groups (WAGs) highlights the value of stakeholder engagement.

Among licensed abstractors, 44% indicated interest in Local Resource Option (LRO) studies or WAG participation, with a further 31% already engaged in such initiatives. This demonstrates considerable potential for collaborative approaches to enhance water resilience.

Environmental Engagement and Infrastructure Potential

Nearly all respondents employ environmental practices or maintain landscape features providing environmental benefits, including hedgerows (widespread), trees, ponds, and cover crops (particularly in arable catchments). However, this may reflect participant selection bias, as farmers with existing environmental interests were likely more inclined to participate.

Regarding pond creation, 94 of 109 respondents (86%) had considered creating ponds on their land — most commonly for biodiversity or amenity purposes (majority), natural flood management (46 respondents), or alternative water sources (38 respondents). Interest in ponds as water resources increased among farmers experiencing water availability constraints.

Some potential exists for infrastructure restoration and repurposing. Nearly 30% of respondents reported silted-up ponds that could be restored for water storage. Additional redundant infrastructure identified as suitable for retrofitting includes old canals, reservoirs, wells, marl pits, disused boreholes, and highway drainage lagoons.

Willingness to Participate in Water Net Gain Schemes

A discrete choice experiment using seven scenarios revealed nuanced preferences and critical participation requirements:

Demand Ponds (On-Farm Water Use):

- Interest evident where farmers value additional water supply for operations
- Pond sizes up to 1 acre generally accepted
- Lower maintenance payments acceptable where on-farm water supply is valuable
- Concerns included: Infrastructure connection costs, water quality for livestock, land area requirements for smaller farms, insufficient volumes for larger arable operations, and requirement for complete mains disconnection

Supply Ponds (Off-Site Water Provision):

- More popular overall, primarily due to higher payment levels
- Particularly attractive to low-intensity and nature-friendly farmers as diversification opportunity
- Substantial financial compensation essential to justify land allocation for schemes providing no direct operational benefit
- Interest varied by catchment: Strong in South-West among nature-friendly farmers, present but competing with cropping returns in arable areas, limited where direct farm benefit absent

Critical Design Requirements:

- **Payment structures** emerged as more influential than contract length or land area in determining participation
- **Maintenance payment provision** is essential, given prevalence of silted-up ponds and farmers' unwillingness to bear de-silting costs independently
- **Scheme flexibility** is critical: Concerns about complete mains disconnection, water ownership by water companies, inflexible contracts, and covenant restrictions indicate one-size-fits-all approaches will fail

- **Capital investment support** necessary, as many farmers cannot contribute substantial sums given competing business priorities
- **Contract adaptability** required to accommodate varying succession planning status and land tenure arrangements

Approximately 30% of in-person interview respondents indicated they would not participate in any scenario. However, feedback suggested that adapted schemes addressing specific concerns — particularly around water ownership (farmer-owned for demand ponds), retained mains access for emergencies, and contract flexibility — might change this position for some.

Regional Variations and Implementation Considerations

Farm advisor insights from focus catchments revealed distinct regional characteristics influencing Water Net Gain viability:

Rivers Trust area	Key Characteristics	WNG Implications
Tamar (Westcountry Rivers Trust)	Livestock farming; boreholes and mains water; drinking water demand	Small-medium demand ponds appropriate; external investment essential; strong supply pond interest among nature-friendly farmers; water quality concerns
Colne (Essex and Suffolk Rivers Trust)	Arable farming; river abstraction and reservoirs; irrigation demand	Demand ponds often too small for irrigation needs; strong LRO interest; potential for non-arable farms on mains water; rainwater harvesting interest; abstraction licensing uncertainty
Idle (Trent Rivers Trust)	Arable farming; river and borehole abstraction; irrigation demand	Demand ponds often too small; Internal Drainage Board engagement required; opportunity to divert pumped drainage to storage; joint venture approaches welcomed
Downholland/ Dean (Mersey Rivers Trust)	Mixed farming; mains water; irrigation and drinking water	Excess water issues prominent; trust reduced by policy uncertainty; schemes must demonstrate clear cost/resilience benefits

Cross-Cutting Implementation Requirements:

1. **Substantial external investment** essential, as capital requirements exceed most farmers' available capacity given competing priorities
2. **Locally adapted solutions** required, tailored to individual farm business needs and catchment-specific conditions
3. **Appropriate financial incentives** that reflect opportunity costs and compete with alternatives such as Biodiversity Net Gain
4. **Scheme flexibility** to accommodate emergency backup provisions, diverse tenure arrangements, and varying business planning horizons
5. **Enhanced water monitoring** to address widespread lack of consumption data limiting scheme design and impact assessment
6. **Clear administrative pathways** for abstraction licensing, planning permissions, landlord consent, and contract transferability
7. **Collaborative approaches** through LROs and WAGs to enhance both uptake and outcomes

Conclusions and Implications

This survey demonstrates that farmers face genuine water resilience challenges while simultaneously managing excess water problems that Water Net Gain schemes could address. Environmental engagement is widespread, and interest in pond creation — for biodiversity, natural flood management, or water supply — is substantial.

However, participation in Water Net Gain schemes is not assured. Success depends on careful scheme design acknowledging the diversity of farm business structures, financial constraints, and need for flexibility. The finding that payment levels matter more than contract length or land area suggests that appropriate financial structures can overcome many barriers — but only if schemes are sufficiently adaptable and well-resourced.

Regional variations underscore that Water Net Gain cannot be implemented through a single national template. Catchment-level design, informed by local farming systems, water source characteristics, and stakeholder landscapes, will be essential to achieving meaningful uptake and impact.

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1. Introduction

A Water Net Gain (WNG) farmer survey was conducted between September 2025 and January 2026 to understand farms' water resilience challenges and opportunities, including farmers' attitudes towards participating in a WNG scheme. The survey was distributed throughout England, with detailed methodology provided in the Methodology section below.

A total of 109 responses were collected: 63 through in-person interviews and 46 through the online survey platform.

Respondents were distributed across several key catchment areas: 44 in the Westcountry Rivers Trust (RT) area, 26 in the Idle catchment (Trent RT), 14 in the Downholland and Dean catchment (Mersey RT), and 14 in the Colne catchment (Essex and Suffolk RT). A further 11 respondents were located in other parts of the country.

2. Question-by-Question Results

2.1 Farm Types

The majority of respondents practiced mixed farming (defined as livestock and arable farming), followed by arable farming (Figure 1). This distribution differs somewhat from national statistics for England[1], with a higher proportion of dairy and mixed farmers represented in this survey. This variance may be attributed to several factors: the prevalence of certain farm types within the focus catchments, the likelihood that farmers with existing environmental interest are more inclined to participate in such surveys, and differing definitions of what constitutes “mixed farming” (Defra’s data assigns mixed only when both crops and livestock account separately for more than one third of standard output).

Other land management types represented included a wide range of activities, from conservation and nature restoration to recreation and equestrian enterprises:

- Non-farming landholders
- Conservation land with grazing
- Nature restoration
- Unimproved grassland
- Grazing forestry
- Garden centre

[1] Department for Environment, Food & Rural Affairs. 2025. Agricultural in the UK Dashboard. Online available at: https://defra-farming-stats.github.io/auk-dashboard/#farm-types

- Equestrian
- Golf club
- Coppice/ Woodland
- Caravan storage
- Orchard & agroforestry
- Deer farming
- Events/recreation

The main arable crops reported by respondents were cereals (particularly wheat and barley), potatoes, oilseed rape, maize and grass.

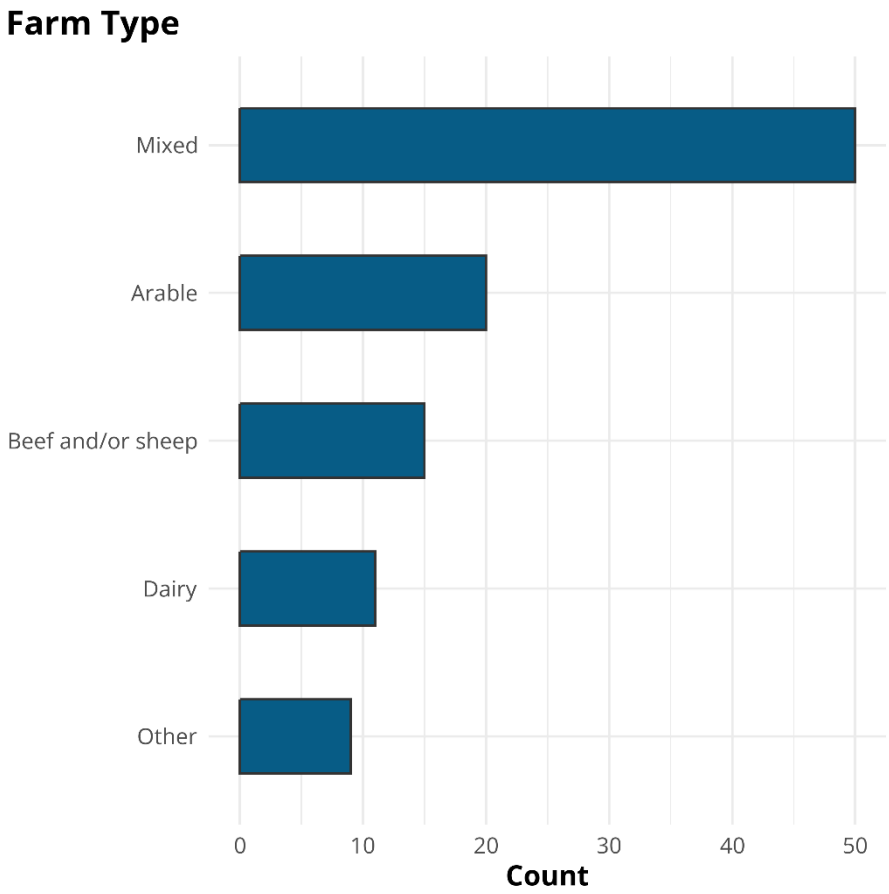


Figure 1: Distribution of farm types among survey respondents

Regional Differences

While a diverse range of farm types were represented in the Mersey RT area, the Essex and Suffolk, and Trent RT areas were predominantly composed of mixed or arable farmers. In the Westcountry RT area, respondents were either mixed or livestock farmers, with no representation from exclusively arable operations (Figure 2).

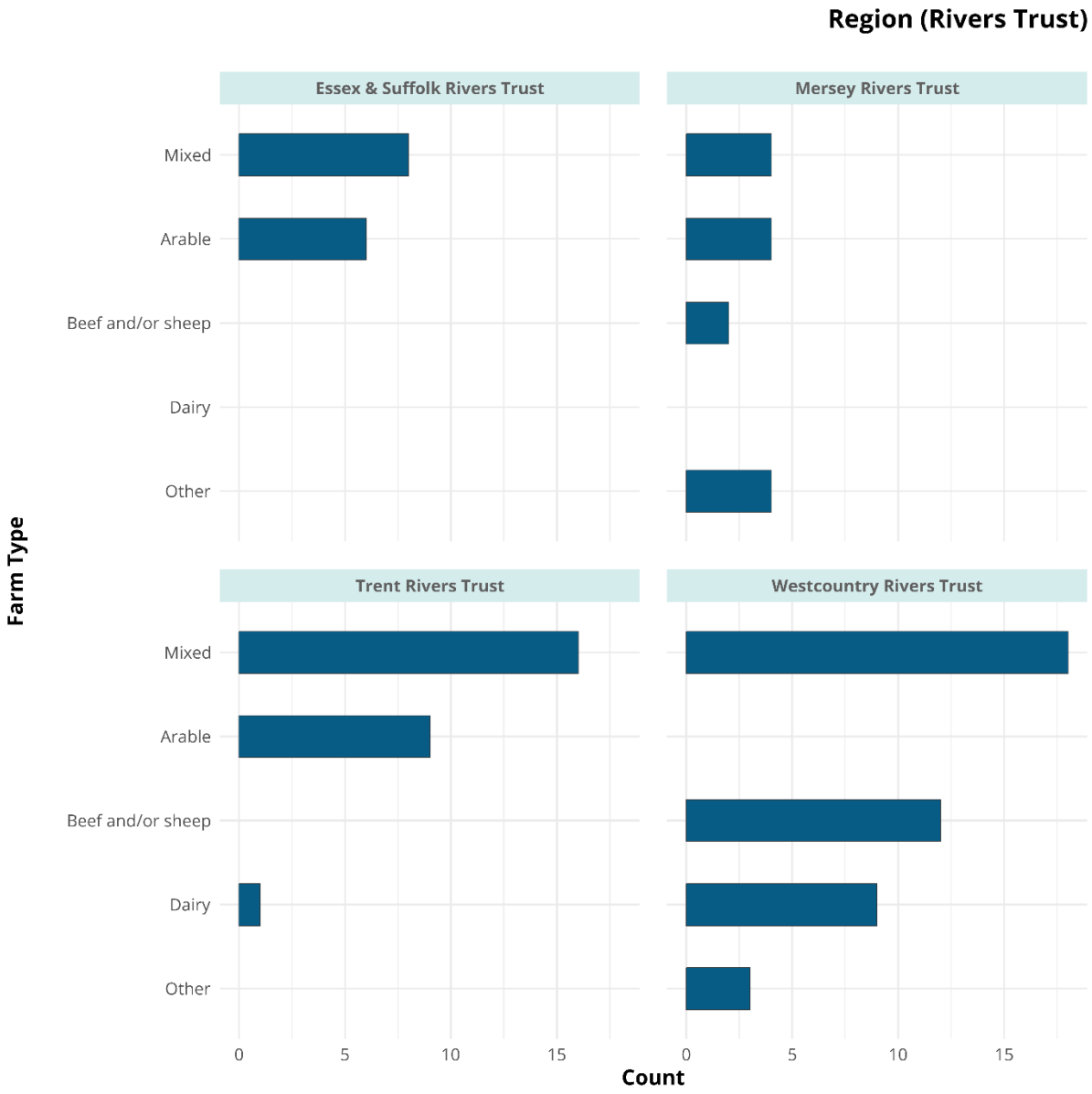


Figure 2: Distribution of farm types among survey respondents across four main Rivers Trusts areas

2.2 Area of Farmland

The average area of farmland among respondents was 278 hectares, with farm sizes ranging from 1.2 hectares (in the Westcountry RT area) to 6,070 hectares (in the Trent RT area) (Figure 3).

Arable and mixed farms tended to have larger land areas than livestock farms.

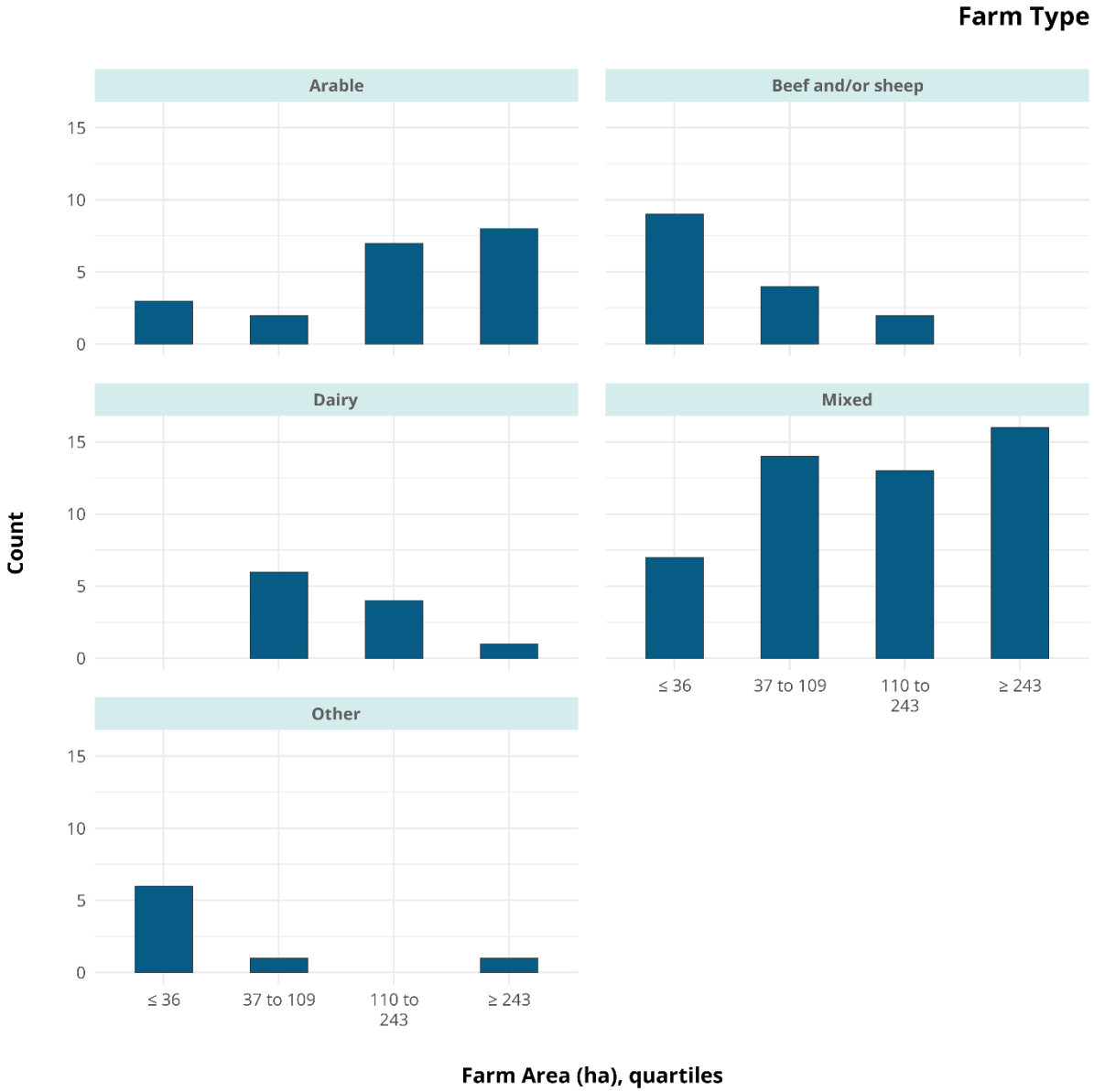


Figure 3: Distribution of farm area by farm type

2.3 Land Ownership

The majority of respondents (57%) were full landowners, 32% owned some land while renting additional land, and 9% were tenants with no land ownership (Figure 4).

This distribution was relatively consistent across catchment areas, with one notable exception: in the Trent RT area, all respondents owned at least some of their land.

The survey findings align broadly with national statistics for England, where 45% of agricultural holdings are wholly or partially tenanted[2].

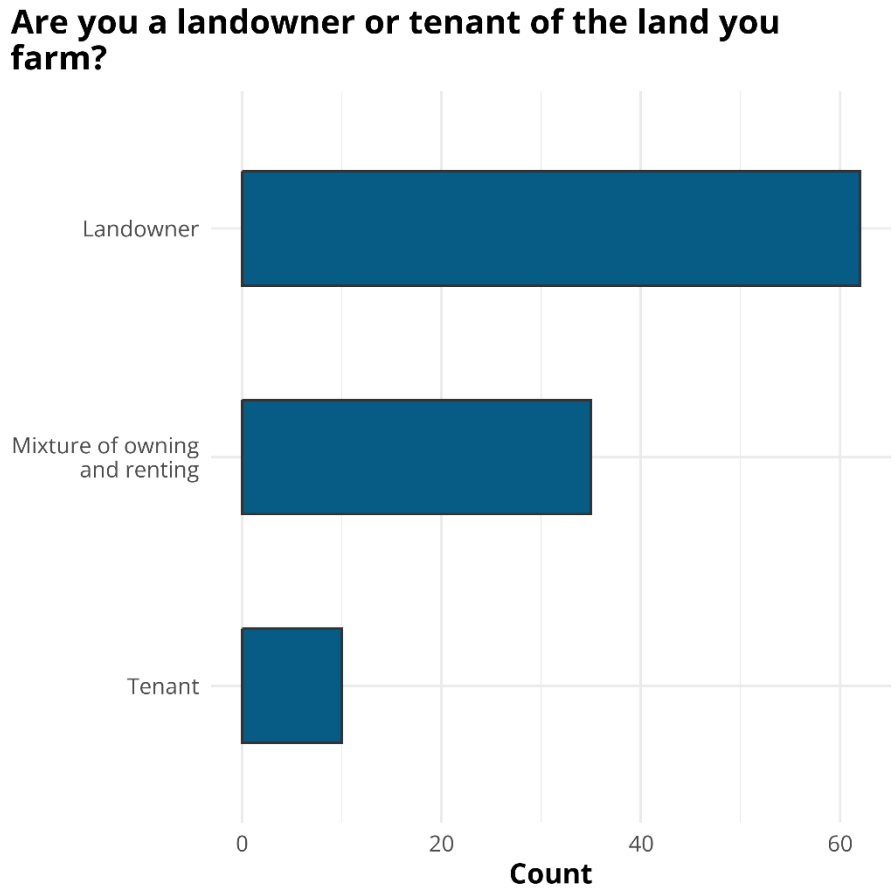


Figure 4: Land ownership status among survey respondents

[2] Department for Environment, Food & Rural Affairs. 2023. The Rock Review: summary and recommendations. Online available at: https://www.gov.uk/government/publications/the-rock-review-working-together-for-a-thriving-agricultural-tenanted-sector/the-rock-review-summary-and-recommendations#key-facts

2.4 Age Groups and Succession

The majority of respondents (74%) were aged 45 years or older. By comparison, national data from 2016 indicated that 88% of farmers were over 45 years old[3] (Figure 5). While the age distribution may have shifted between 2016 and 2025, the lower proportion of older farmers in this survey may also reflect greater interest in alternative income streams among younger farmers compared to those approaching retirement.

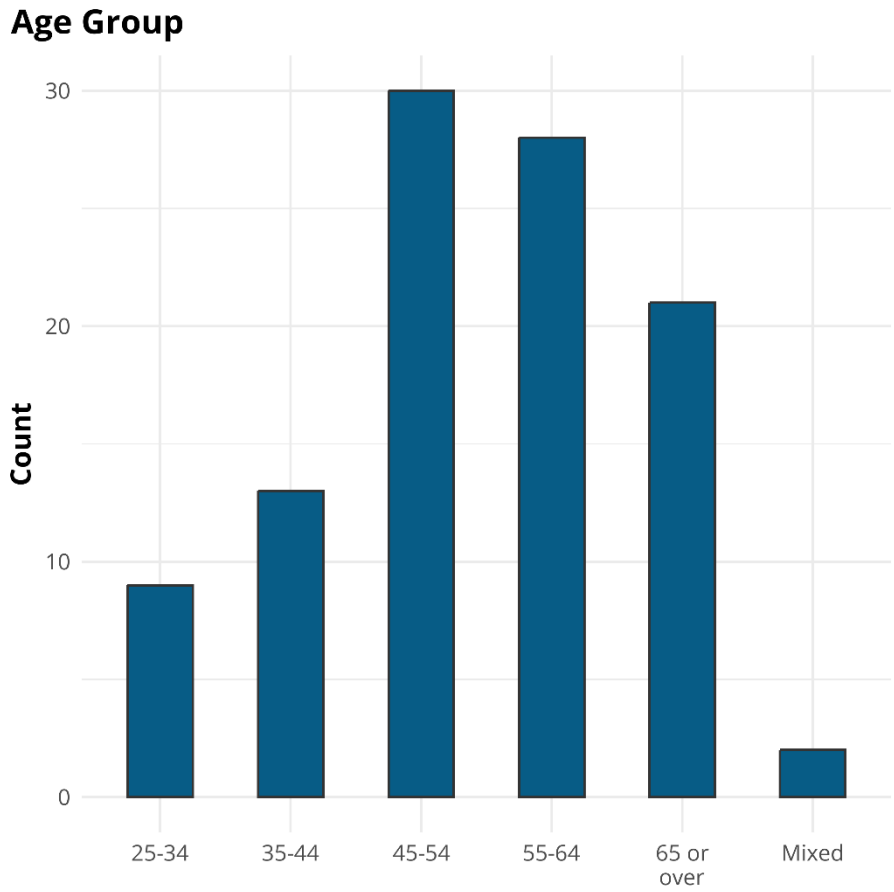


Figure 5: Age groups among survey respondents

Farm succession planning is closely related to age profile. Only just over half (52%) of respondents reported having a succession plan in place (Figure 6).

[3] Department for Environment, Food & Rural Affairs. 2025. Agriculture in the UK 2024: Chapter 2 – Structure of industry (dataset). Online available at: https://view.officeapps.live.com/op/view.aspx?src=https%3A%2F%2Fassets.publishing.service.gov.uk%2Fmedia%2F680b638456bc2cfe7f7f5b7c%2FAUK-chapter2-20250710.ods&wdOrigin=BROWSELINK

This finding aligns with national survey data, where 45.5% of farmers have identified a successor, with succession planning more common among older age groups[4].

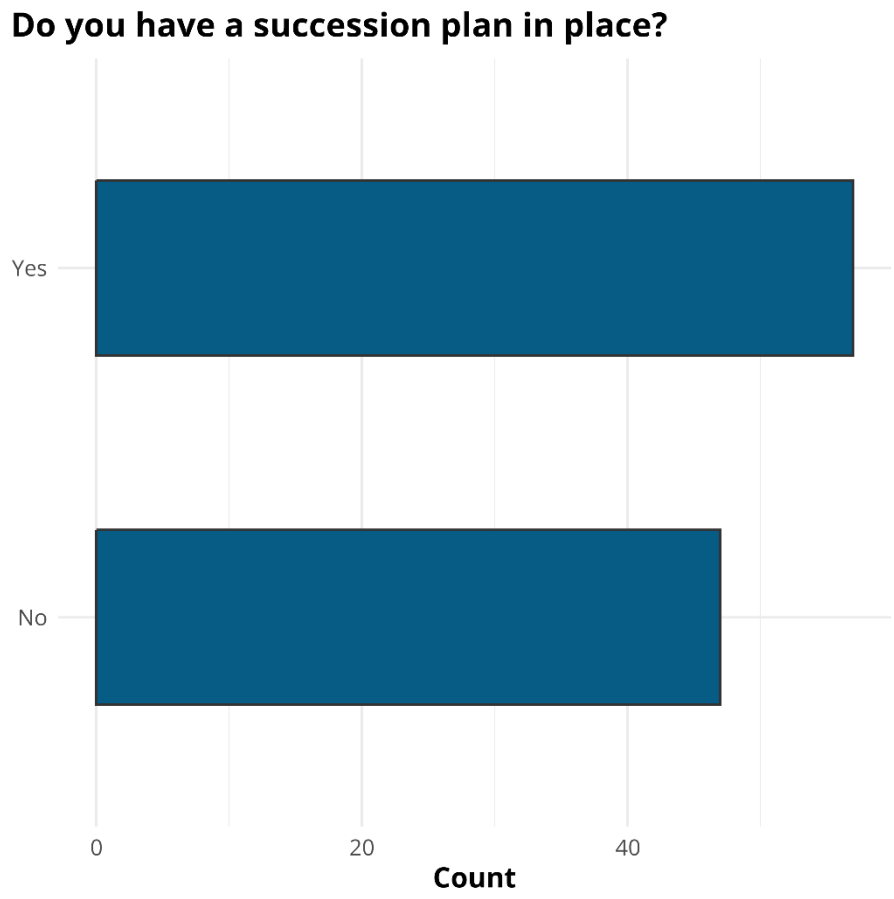


Figure 6: Succession planning status among survey respondents

[4] Rebecca Wheeler, Matt Lobley, Richard Soffe. 2020. Farm Succession and Inheritance in England, Scotland and Northern Ireland. Online available at: https://www.exeter.ac.uk/v8media/research/crpr/documents/Inheritance_and_succession_Final_report_for_NFUM_FINAL_version_30.07.20.pdf

Regional Differences

While the overall proportion was comparable to national figures, the Mersey RT area exhibited a notably higher number of farms without succession plans (Figure 7). This may be attributable to the smaller average farm sizes or lower in this area, as suggested by the Inheritance and Succession study[4].

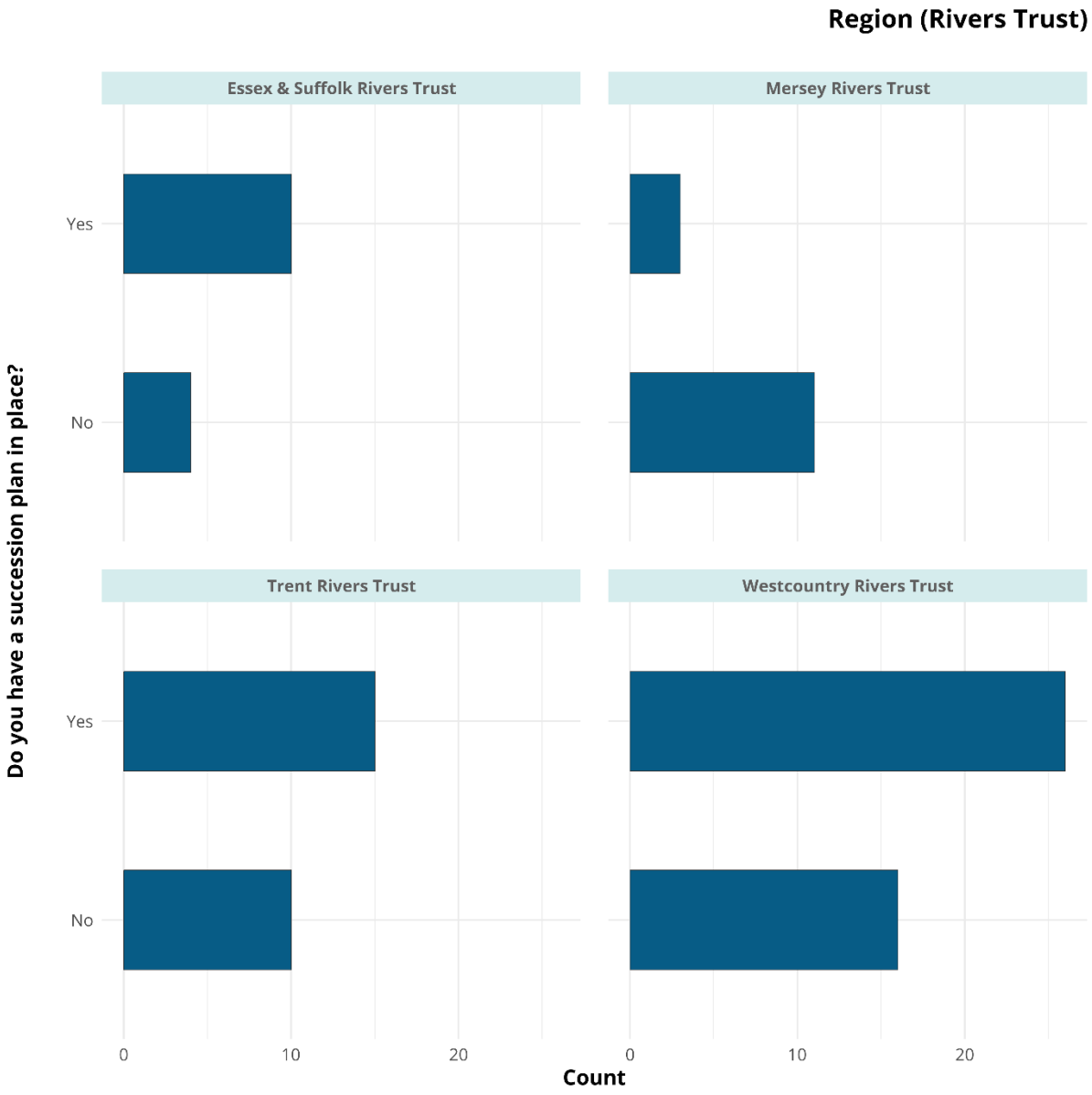


Figure 7: Succession planning status among survey respondents across four main RT areas

2.5 Main Challenges to Farm Business

The three main challenges identified by respondents were weather extremes (61%), price volatility (58%), and uncertainty of funding (53%). Water availability ranked fourth at 33% (Figure 8). Notably, the survey was conducted following a particularly dry spring and summer, yet water availability still ranked below the top three concerns. This suggests that while water security is important to

farmers, investment priorities are likely to be directed toward addressing weather resilience, price stability, and funding certainty.

When analysed by farm type, water availability emerged as a more important challenge for arable farming than for other sectors. Uncertainty of funding was a greater concern for beef and sheep farmers, whereas price volatility was most pressing for arable and dairy operations. For mixed farms, weather extremes represented the most critical challenge.

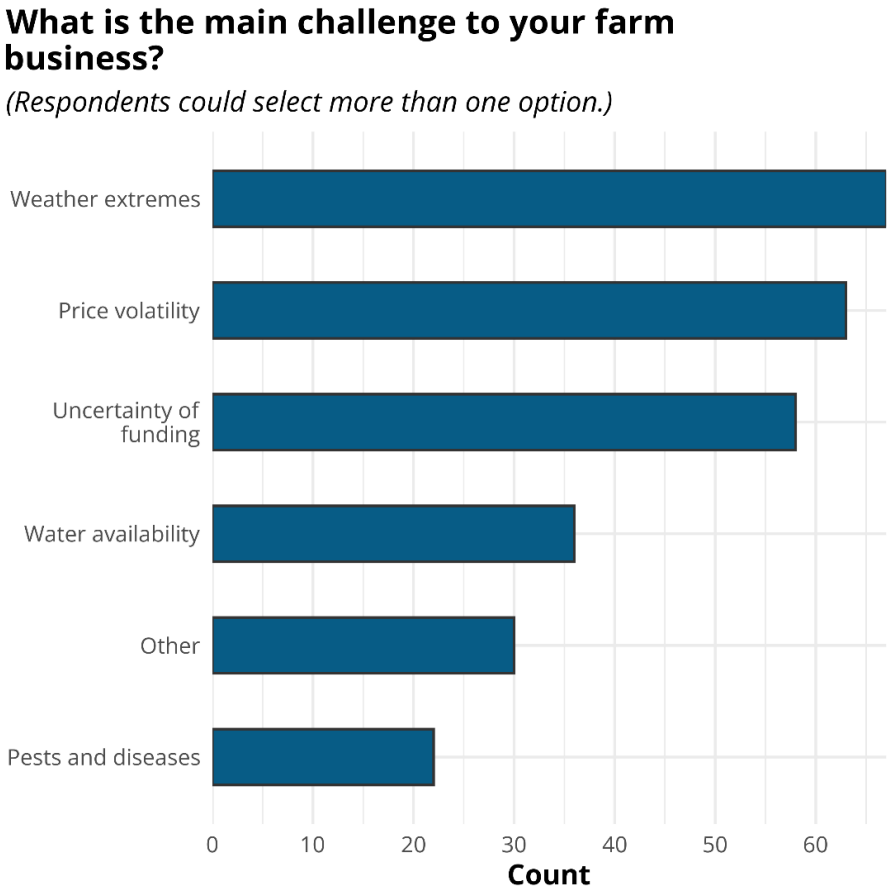


Figure 8: Main challenges to farm businesses identified by survey respondents

Unsurprisingly, water availability increased in importance as a stated challenge among farmers who already identified current or anticipated constraints on water access for their business (Figure 9).

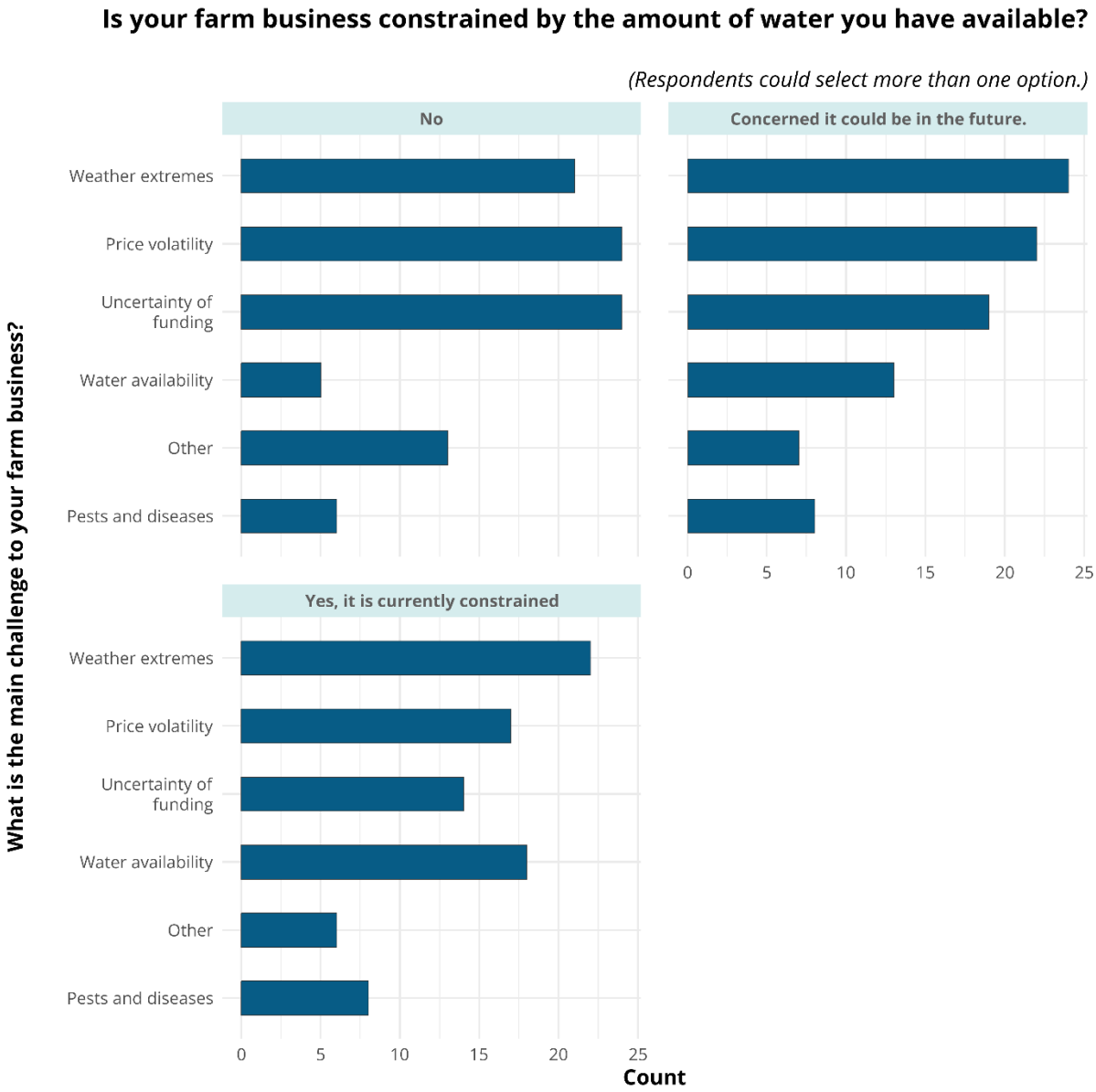


Figure 9: Main challenges to farm businesses by water availability constraints status

Additional challenges mentioned by respondents included:

- Land availability
- Red tape and compliance
- Low farm gate prices
- Labour costs and availability
- Business continuity decisions (whether to continue or sell)
- Opposition to new thinking

- Political uncertainty (government policy changes, lack of trust in government)
- Supermarkets
- General unpredictability
- Business re-structuring
- Inconsistency of advice
- Uncertainty of tenure
- Cost of production and profit margins

2.6 Water Sources for Agricultural Activities

Water Sources

Mains water was the primary water source for 38% of respondents, closely followed by groundwater sources (boreholes, wells, or springs) at 31%. A further 19% relied primarily on surface water sources (Figure 10).

The availability of alternative water sources is a key indicator of farm water resilience when primary supplies are disrupted (due to drought, slow groundwater recharge, hands-off flow restrictions, or supply infrastructure failures). However, 42 respondents (39%) reported having no alternative water source, indicating low water resilience.

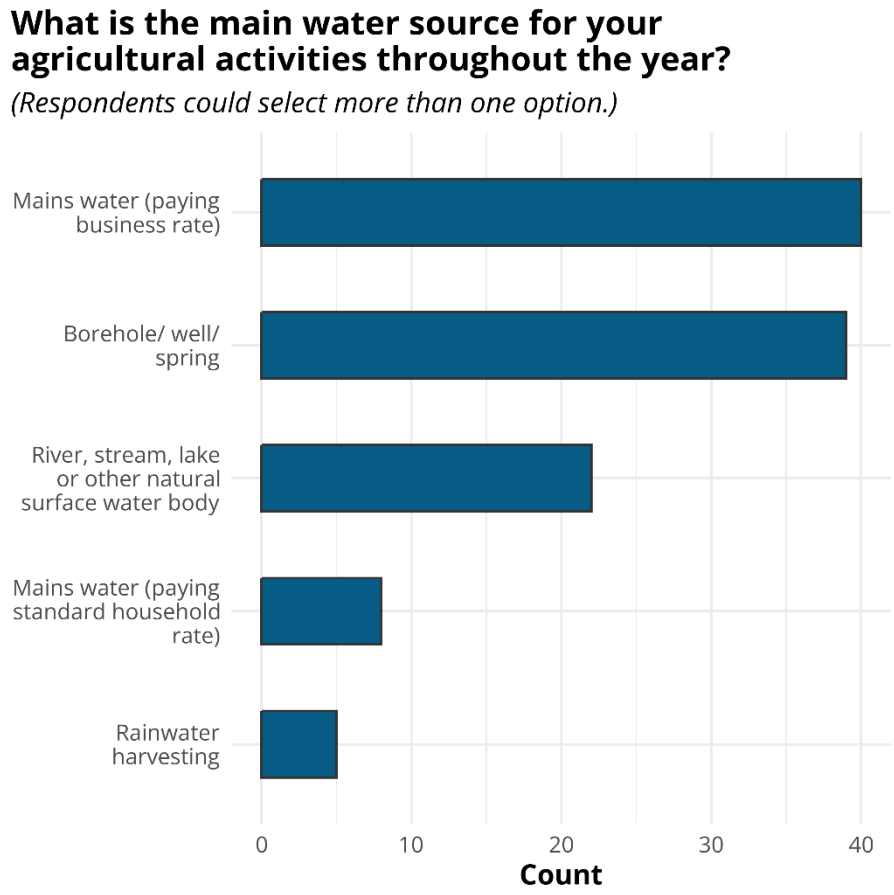


Figure 10: Main water source for agricultural activities

Rainwater harvesting was employed by 23% of respondents, whereas 25% used mains water as a backup when their primary water supply was insufficient (Figure 11). This is notable, as agricultural water demand typically peaks in summer — the same period when public water supply is also under greatest pressure.

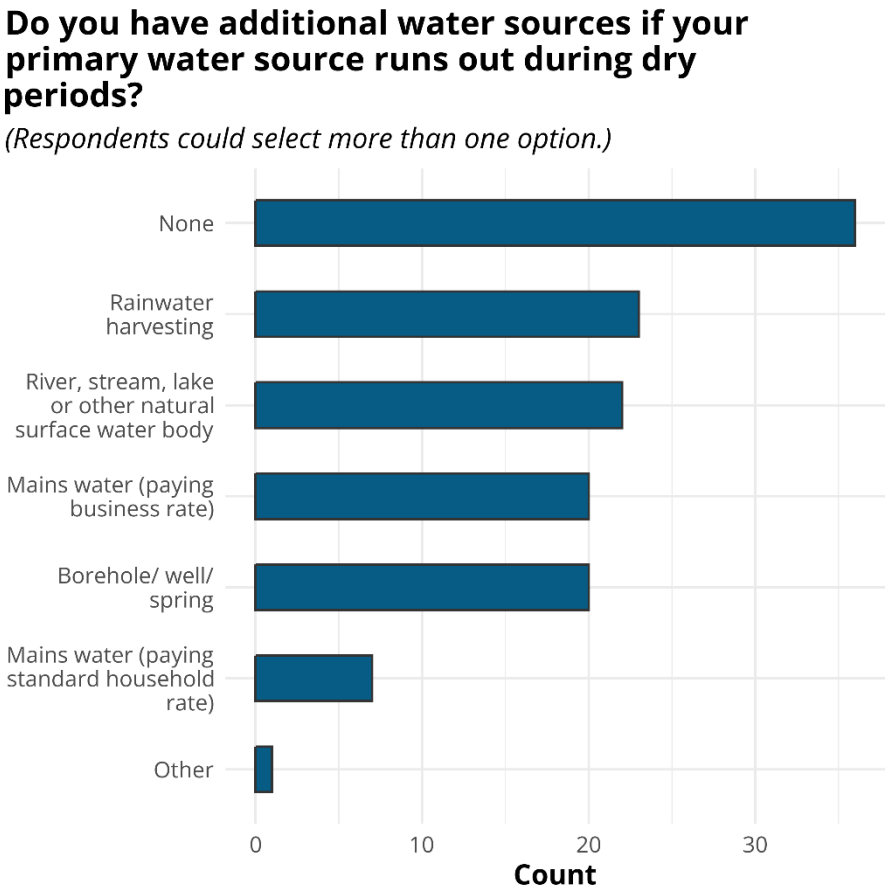


Figure 11: Additional water sources for agricultural activities

A notable difference emerged between farm types: many arable farmers lack alternative water sources, likely due to the large volumes required, which often cannot be adequately supplemented by mains water (Figure 12). Conversely, livestock farmers typically maintain multiple water source options to meet animal welfare requirements. This disparity helps explain why arable farmers rank water availability as a more critical challenge than other farm types (see Section 1.5).

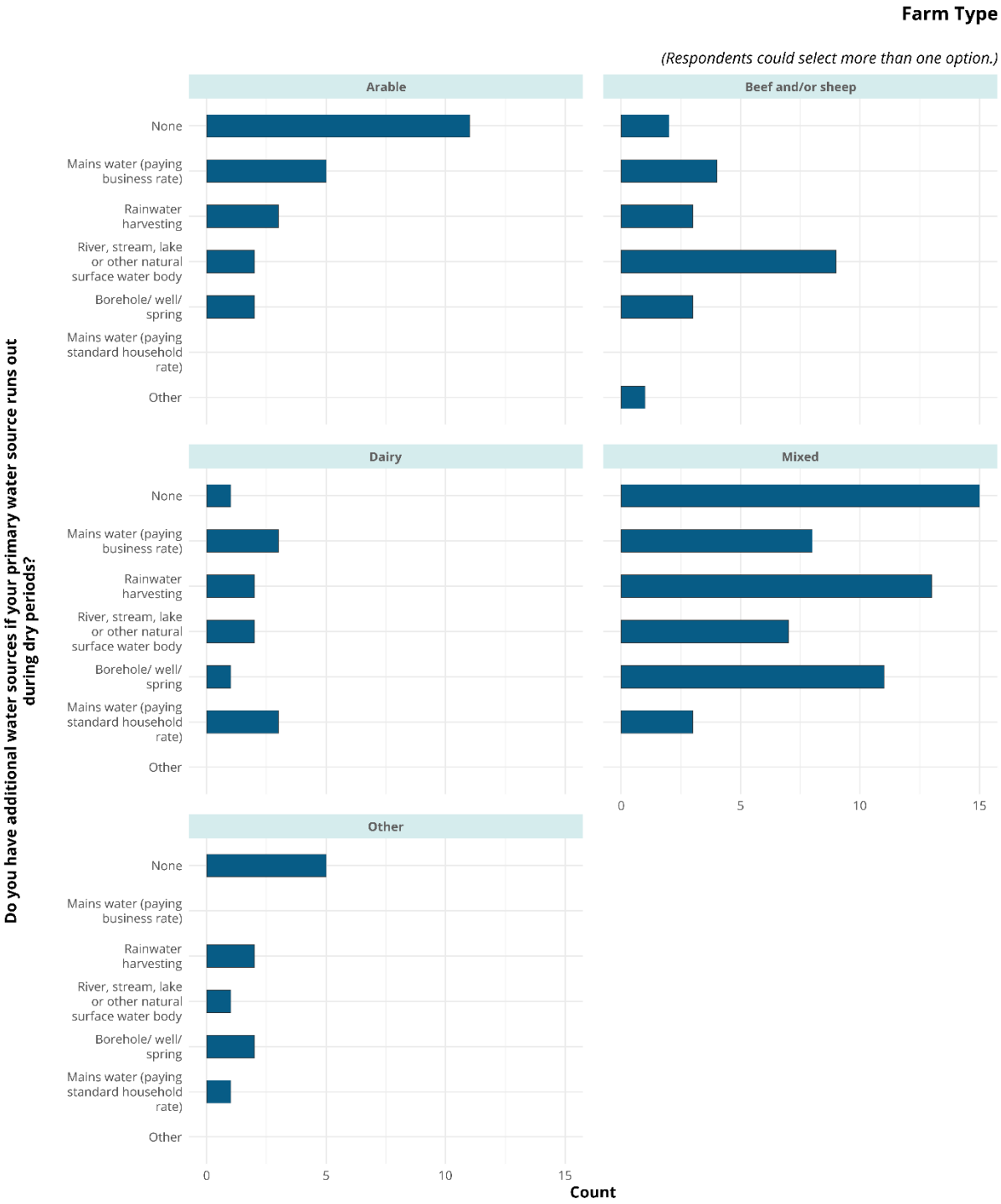


Figure 12: Additional water sources for agricultural activities by farm type

Water Consumption Volumes

Reported annual water use ranged from 5m³ to 1,360,000m³, with an average of 66,650m³ per year (equivalent to approximately 183m³ per day).

Consumption volumes varied substantially between catchments: farmers in the Trent RT area averaged 184,000m³ per year; those in the Essex and Suffolk RT area 14,500m³ per year; Westcountry farmers 6,774m³ per year; and Mersey

farmers 196m³ per year[5]. This likely relates to the distribution of farm types across the different areas, as arable farming typically requires larger water volumes than beef and sheep (lowest water consumption) or dairy farming (medium water consumption) (Figure 13).

[5] Note: Only four Mersey farmers were able to provide consumption data; therefore, this figure may not be representative of water use in that catchment.

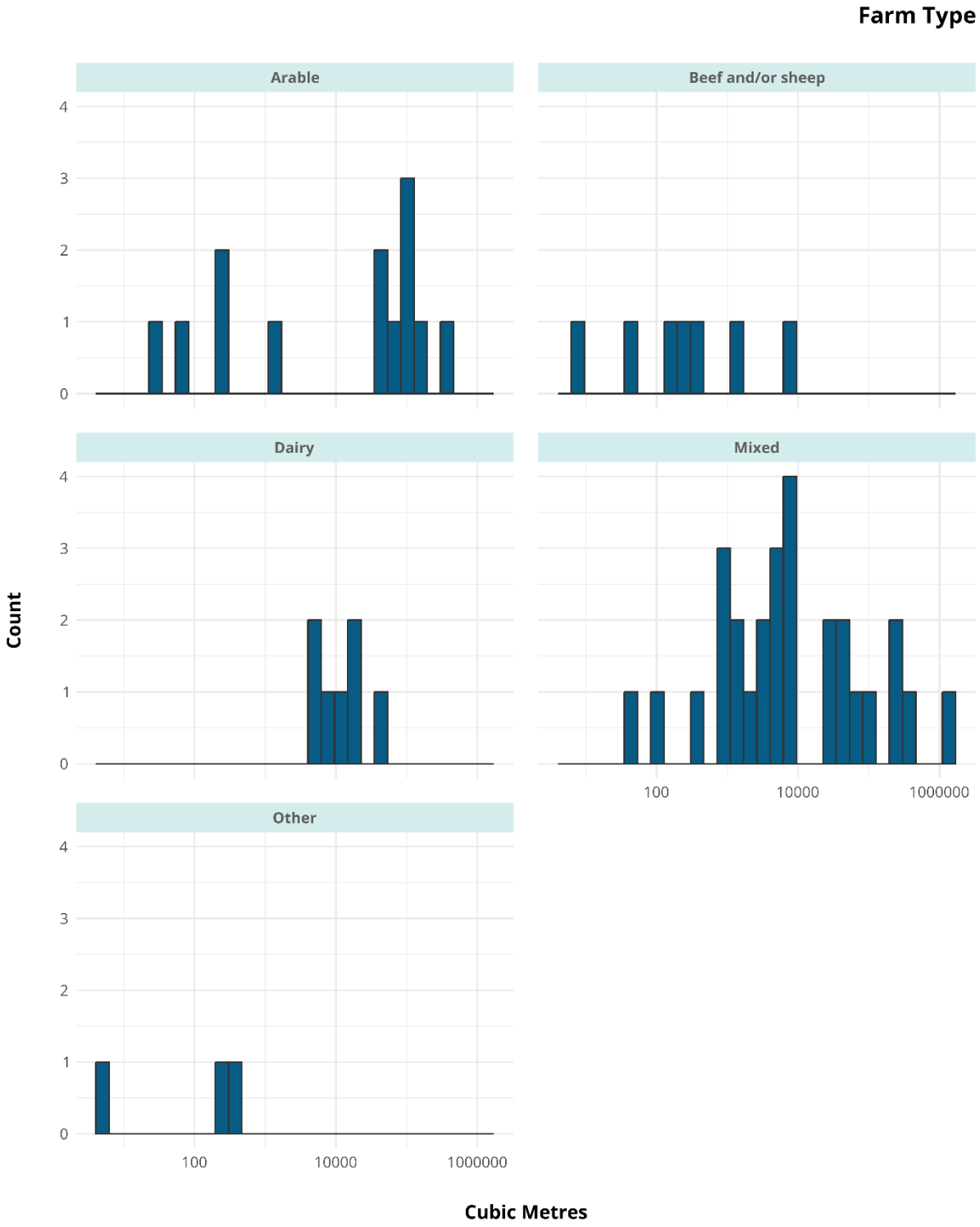


Figure 13: Annual water consumption by farm type, on a logarithmic scale

However, nearly half of respondents (47%) were unable to quantify their water consumption, with some providing only estimates based on livestock numbers. This lack of metering presents an important challenge for accurately assessing

agriculture's impact on water resources, particularly for farms operating below the 20m³/day abstraction licensing threshold[6].

Water Storage

The majority of respondents did not store water on-farm (Figure 14). Among those practicing rainwater harvesting, storage tanks averaged 40m³ capacity (sufficient for approximately seven days of use). Reservoir storage ranged from 22,500m³ to 1,000,000m³, with an average capacity of 250,000m³. Eight respondents reported storing water in ponds, though it remained unclear whether these were used for agricultural operations or maintained primarily for wildlife purposes.

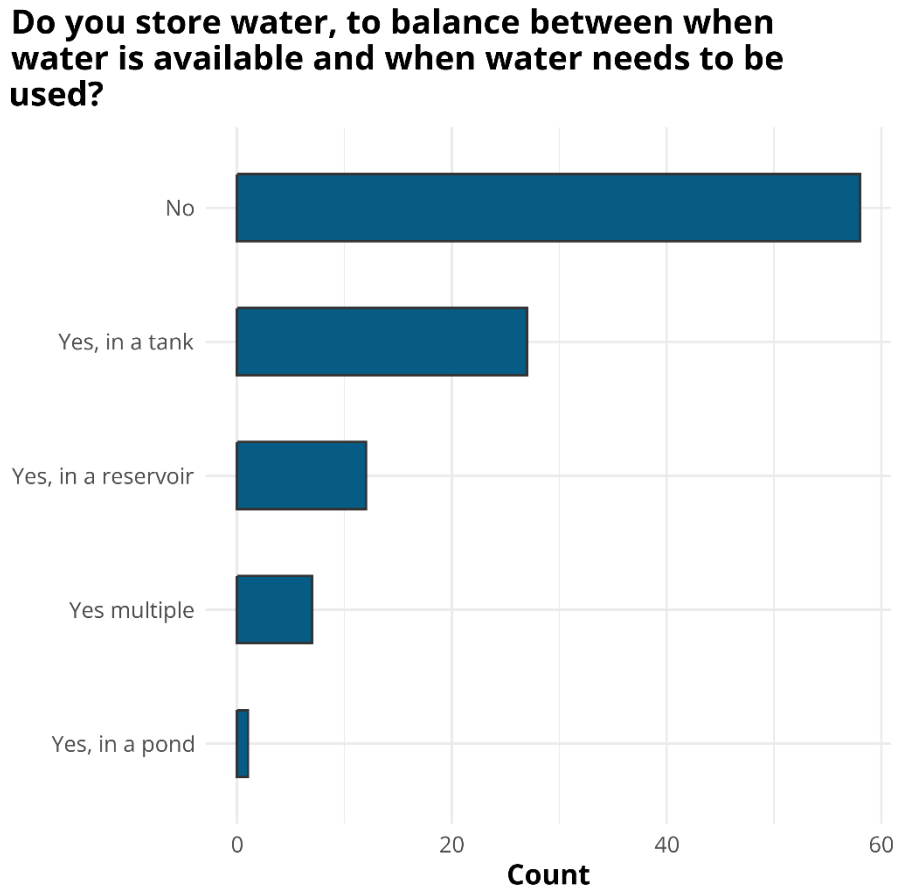


Figure 14: Water storage practices among survey respondents

[6] BBC News. 8 April 2025. Farmers urged to comply with rules on taking water. Online available at: https://www.bbc.co.uk/news/articles/c4g2my442l0o

Rainwater harvesting was more prevalent among arable and mixed farmers than livestock farmers (Figure 15). This likely reflects water quality considerations: while rainwater is well-suited for crop spraying applications, livestock farmers may have concerns about its suitability for animal drinking water.

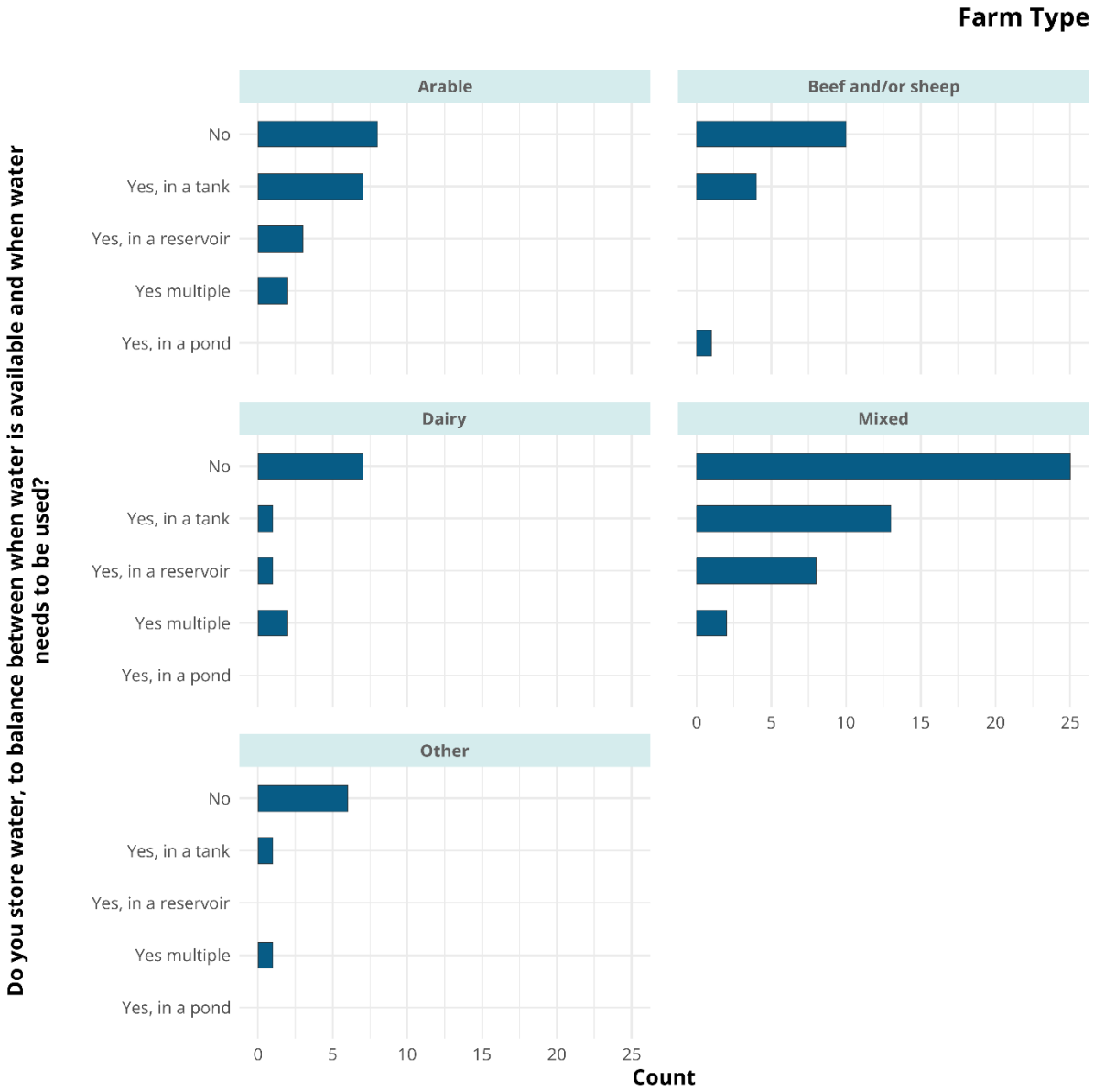


Figure 15: Water storage practices among survey respondents by farm type

Regional Differences

Water source preferences varied by catchment (Figure 16). In the Trent RT area, surface water bodies were the predominant primary source, whereas all other catchments relied principally on mains water. Groundwater sources were the secondary source in the Westcountry and Mersey catchments, while in the Essex and Suffolk RT area, surface water was used almost as frequently as mains water.

These regional variations may reflect differences in farm type distribution (Figure 17). Arable farming operations typically use less mains water than livestock farms, relying more heavily on surface water sources to meet the large volumes required during relatively short irrigation/ spraying seasons.

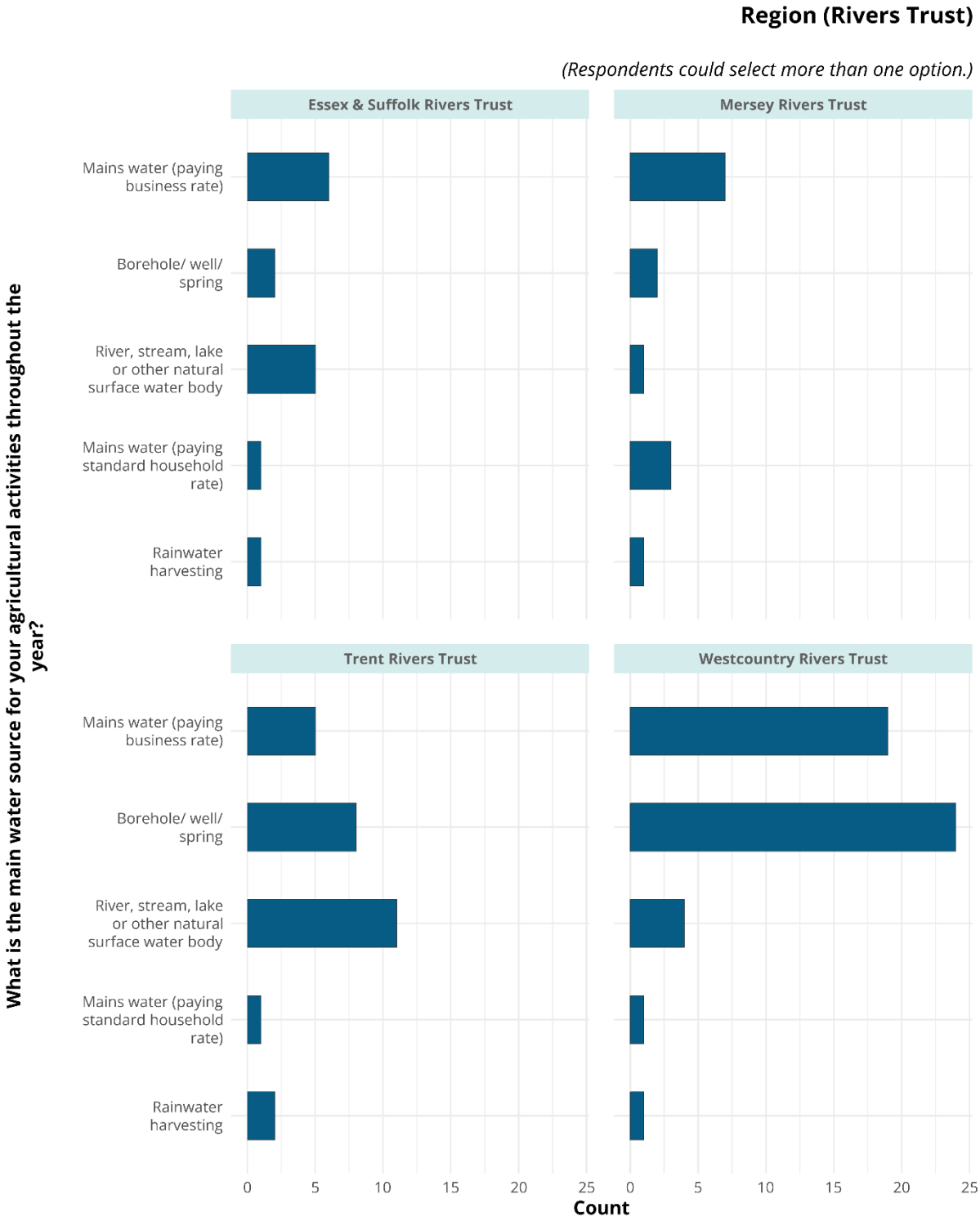


Figure 16: Main water sources for agricultural activities, across four main RT areas

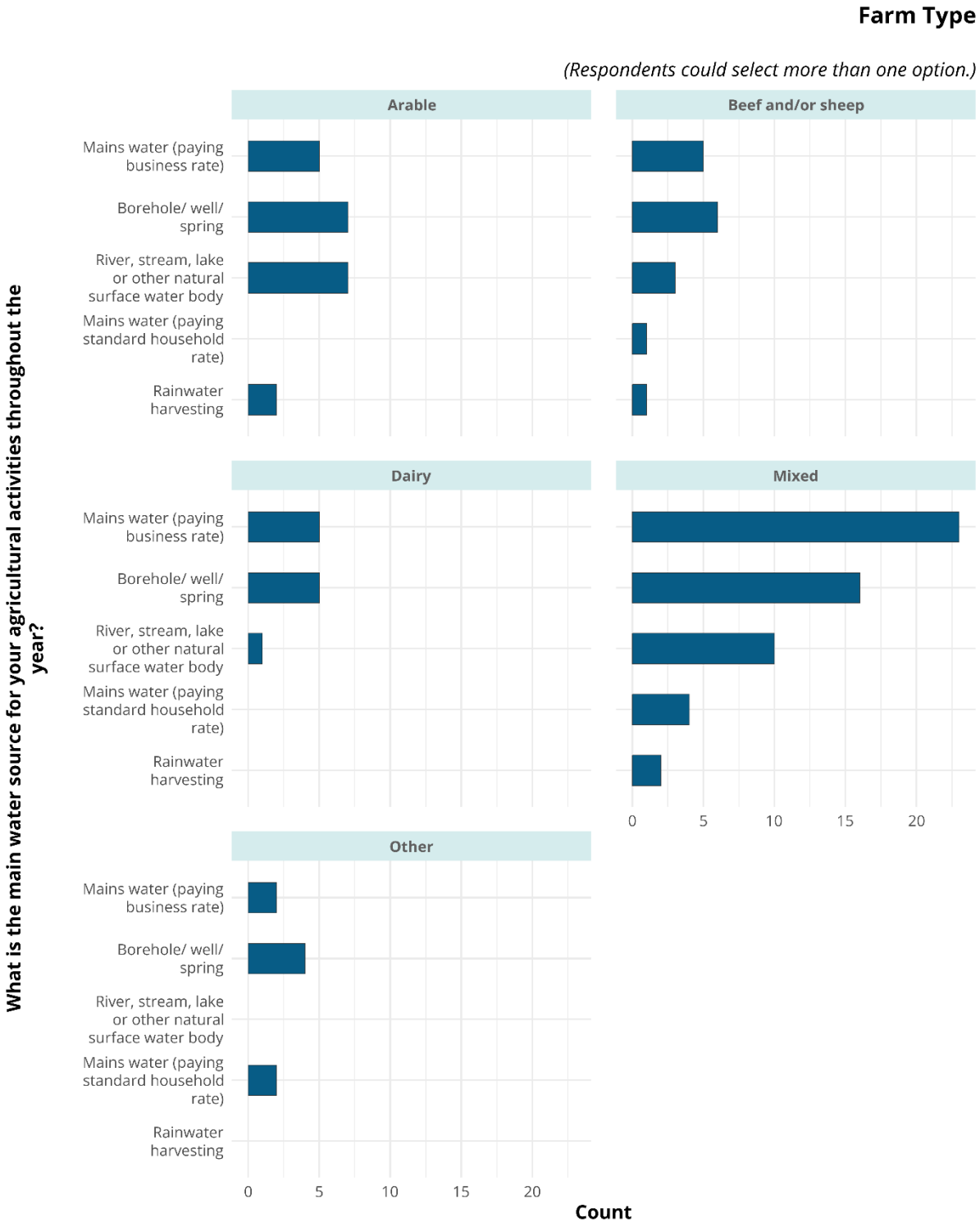


Figure 17: Main water sources for agricultural activities by farm type

2.7 Abstraction Licensing

The majority of respondents did not require an abstraction licence, likely because many rely on mains water (as discussed in Section 1.6) or abstract below the licensing threshold (Figure 18). However, several farmers held licences permitting year-round abstraction, while fewer than 10 were restricted to winter-only abstraction. Those with seasonal restrictions typically maintained on-farm reservoir storage.

Licensed abstraction volumes ranged from 18,250m³ to 1,750,000m³ per year.

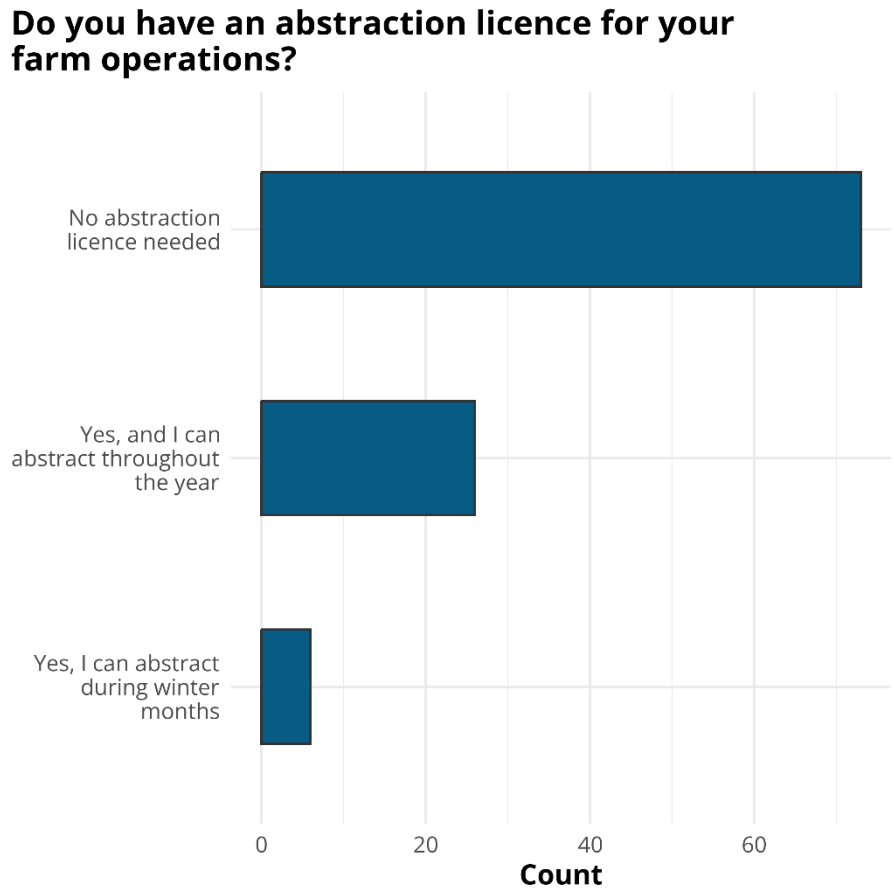


Figure 18: Abstraction licence status among survey respondents

Most respondents did not share water with other businesses (Figure 19). However, 20 farmers either received or supplied water to other operations, the majority of whom (12) held abstraction licences and represented the group with higher water demand.

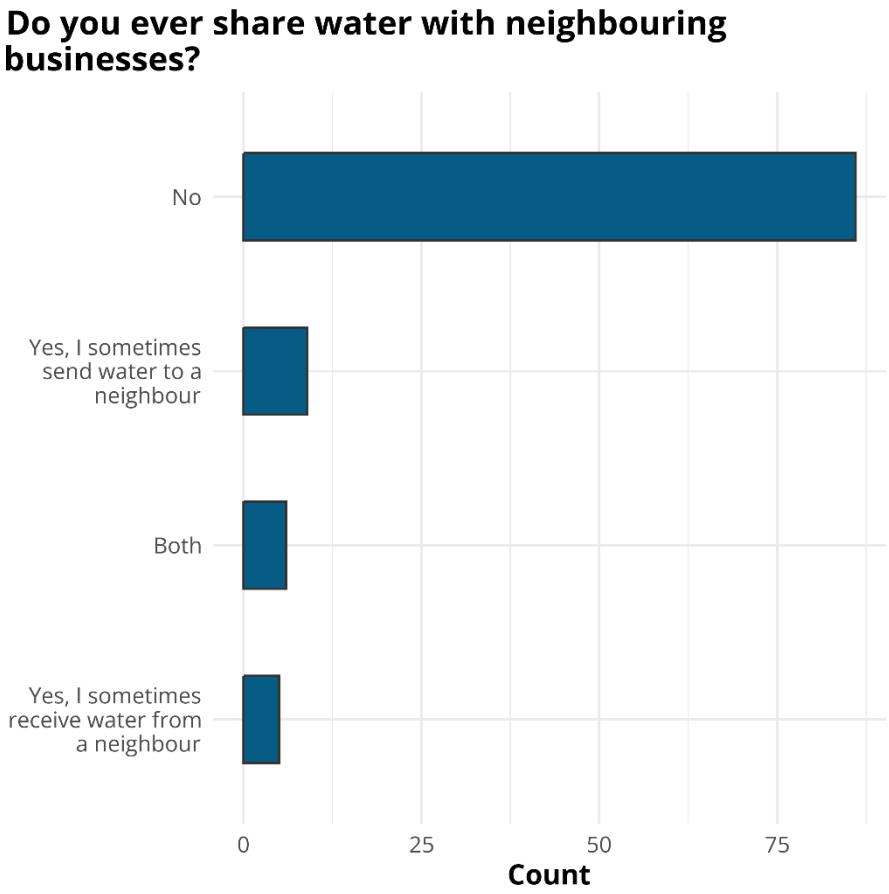


Figure 19: Water sharing with neighbouring businesses

Awareness of Regulatory Changes

Awareness of Environment Agency (EA) proposals to modify abstraction licences varied considerably by focus area (Table 1).

Table 1: Awareness of EA abstraction licence proposals by main RT area

Focus Area	% Aware of EA proposals
Essex and Suffolk RT	57%
Trent RT	85%
Mersey RT	50%
Westcountry RT	9%

The high awareness in the Trent RT area reflects both the prevalence of abstraction licences in this predominantly arable area and sustained engagement around sustainable abstraction through Water Abstractor Groups (WAGs).

Analysis revealed that EA awareness was higher among farm businesses already experiencing, or anticipating, water availability constraints (Figure 20). This

highlights a potential conflict: abstraction reductions may be implemented in areas already facing water scarcity, likely necessitating substantial changes to farming practices.

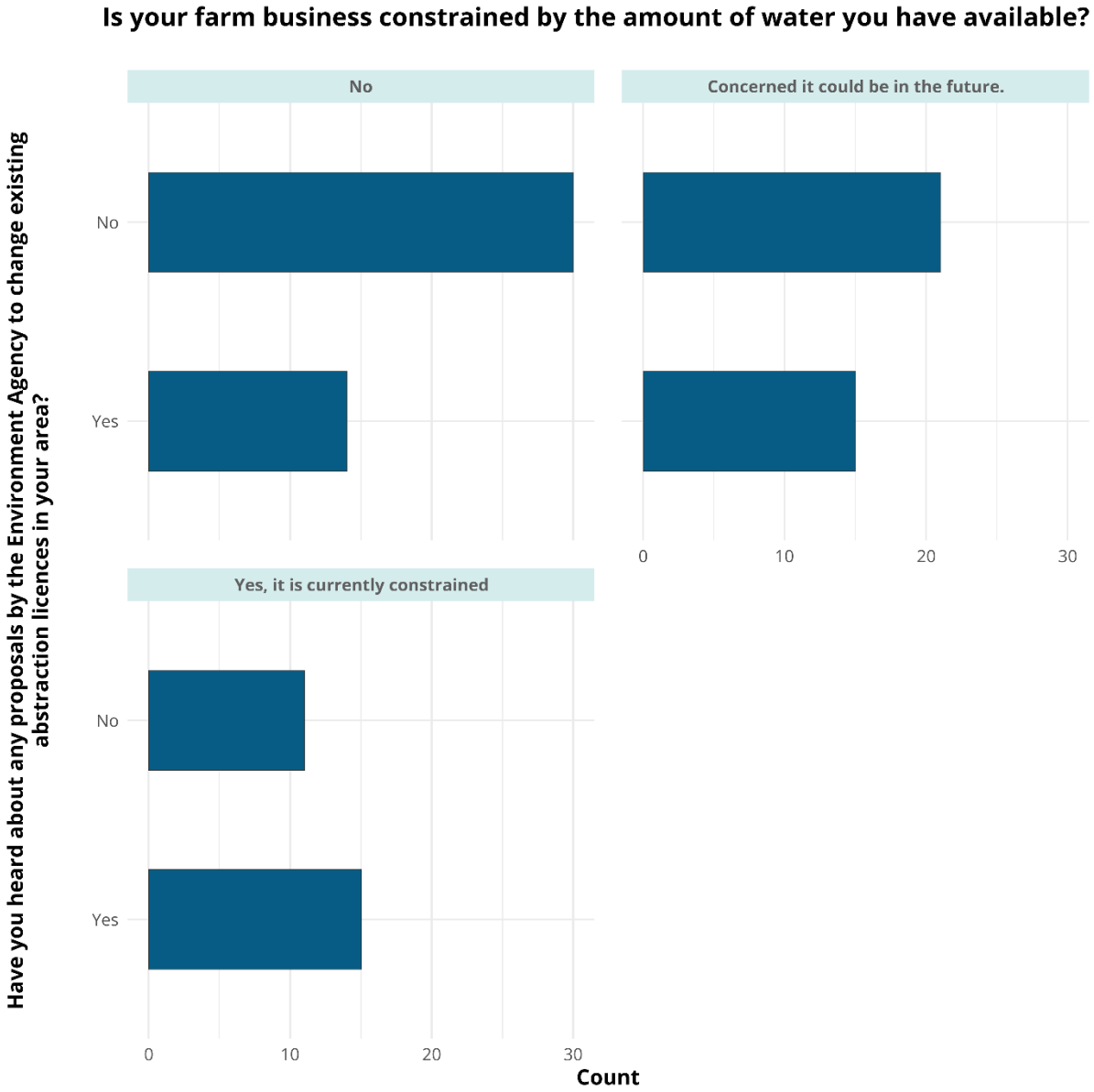


Figure 20: Awareness of Environment Agency abstraction licence proposals by water availability constraint status

Regional Differences

The Trent RT area exhibited the highest proportion of farmers requiring abstraction licences, attributable to the water demands of arable farming in the area and the active engagement of the local Water Abstractor Group in this survey (Figure 21). This engagement has fostered greater interest in water resilience and abstraction management issues.

Among licensed abstractors, 44% indicated they would benefit from participating in a Local Resource Option (LRO) study or joining a Water Abstractor Group, while a further 31% were already engaged in such initiatives (Figure 22), mostly located in the Trent RT area. This demonstrates considerable potential for collaborative approaches to enhance water resilience. In the Essex and Suffolk RT area, 64% of farmers expressed interest in LRO studies. Notably, interest in LROs and WAGs was evident across all catchments, suggesting that Water Net Gain engagement could provide a valuable foundation for bringing together farmers with shared interests in water resilience and facilitating the development of LRO studies and WAGs.

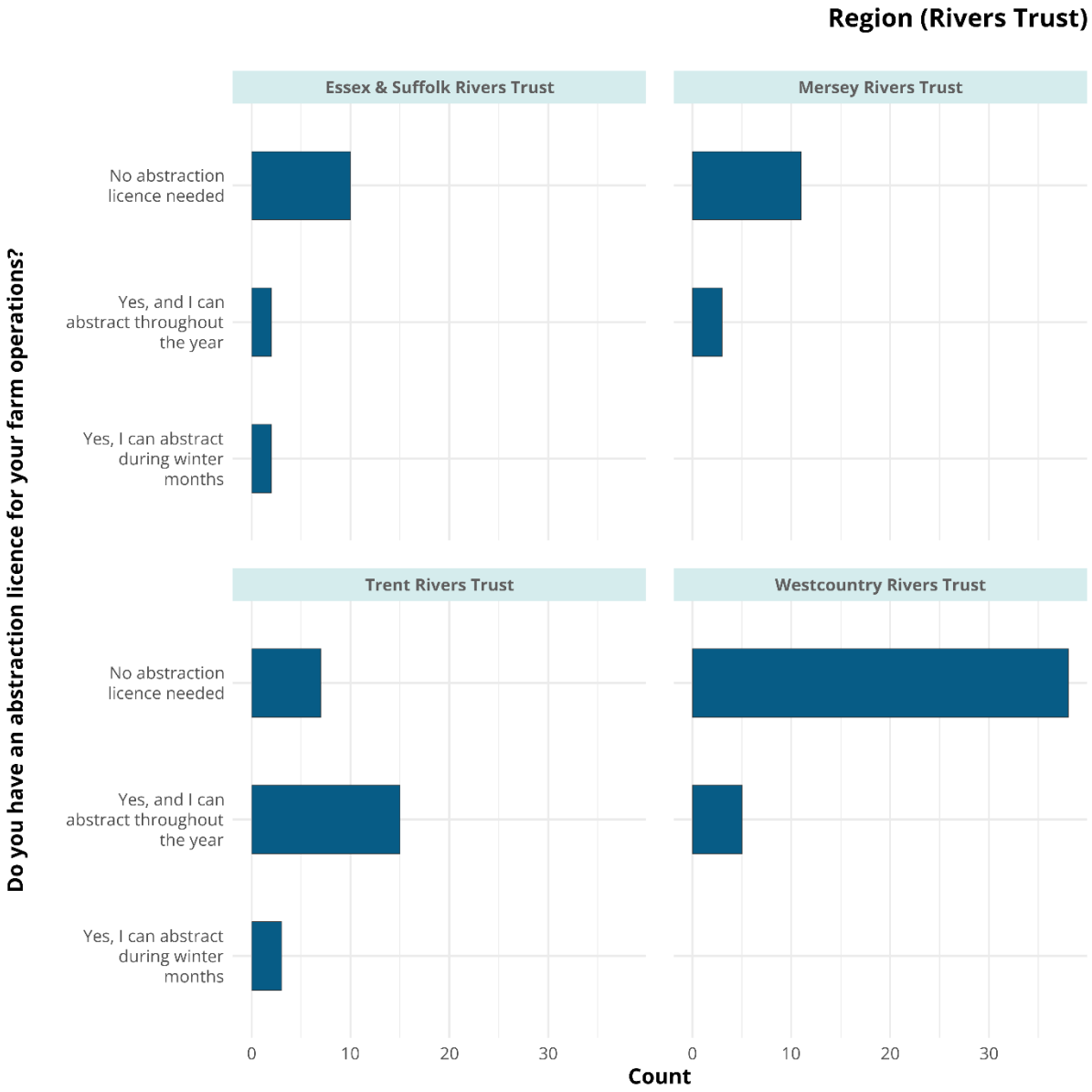


Figure 21: Abstraction licence status among survey respondents across four main RT areas

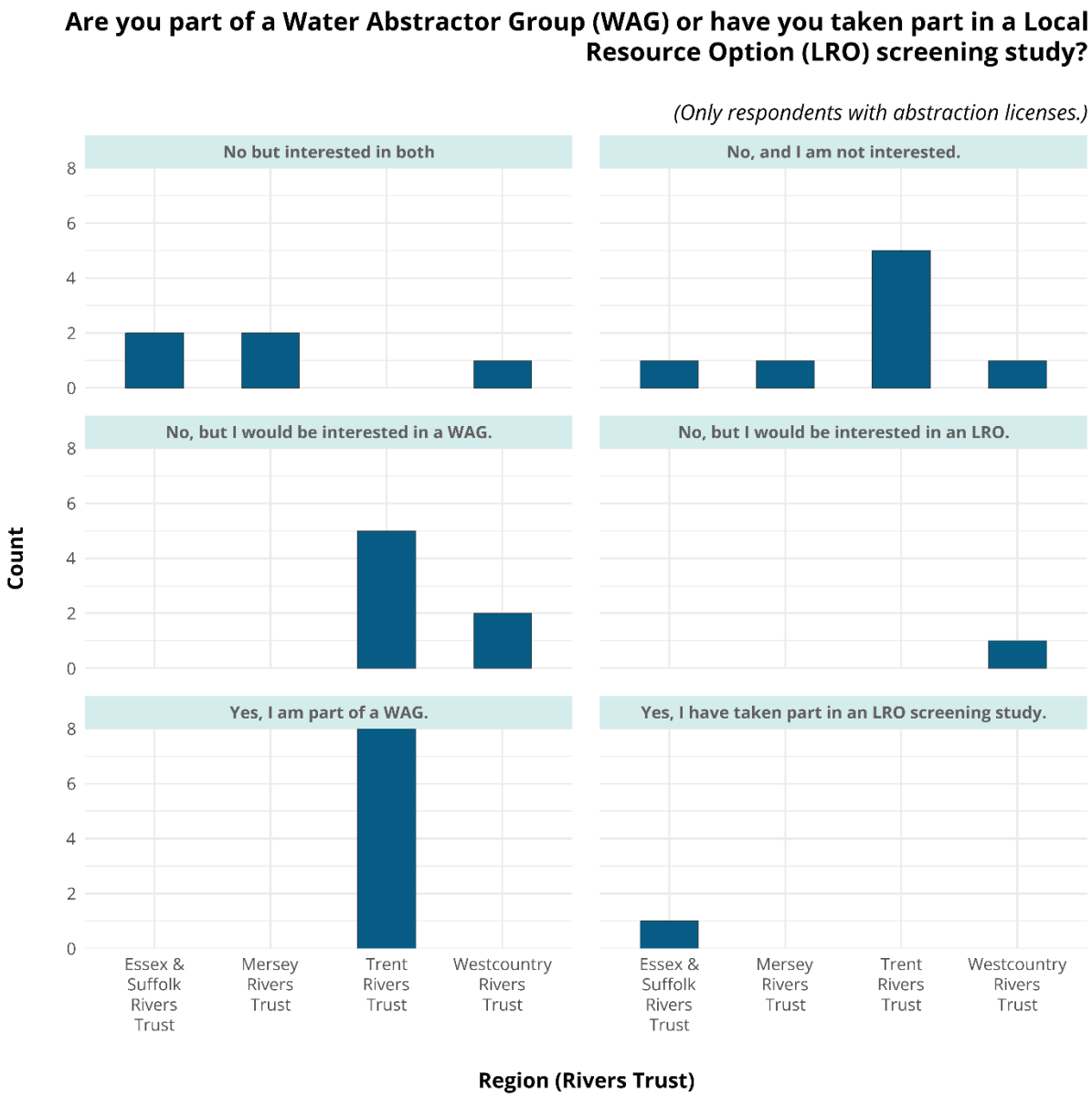


Figure 22: Interest and existing participation in collaborative water resilience approaches across four main RT areas. Figure only shows responses from farmers who have abstraction licences.

2.8 Past and Future Water Shortages

Past Water Shortage Experiences

A majority of respondents (59%) reported experiencing water shortages in the past, with one-third (33%) indicating that these shortages resulted in economic impacts. A small proportion (3%) indicated avoiding economic consequences by switching to mains water as a backup supply (Figure 23).

Reported impacts were categorized as follows:

- **Crop and Yield Impacts:**
  - Reduced grass growth, affecting summer grazing and feed production
  - Decreased crop yield and quality
  - Crop abandonment
- **Water Supply Infrastructure Impacts:**
  - Mains water supply disruptions
  - Reduced domestic water consumption (summer 2025)
  - Boreholes running dry or experiencing slower recharge rates
  - Reduced mains water pressure
- **Irrigation Impacts:**
  - Increased irrigation requirements for pasture to maintain grass growth
  - Insufficient water for planned irrigation
  - All crops requiring more irrigation than usual
  - Hands-Off Flow restrictions preventing irrigation
- **Environmental impacts**:
  - Drying of wetlands and ponds
  - Tree planting failures requiring replanting
  - Particularly severe drying of sandy soils

The years 2018, 2022 and 2025 were frequently cited as periods of water shortage.

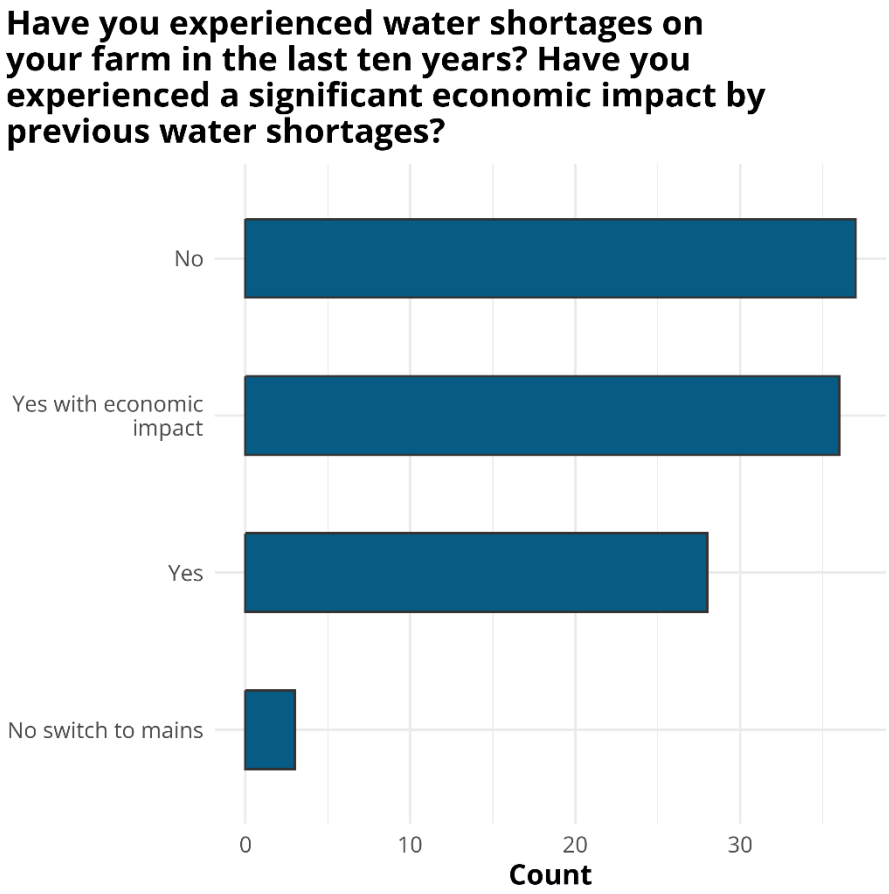


Figure 23: Experience of water shortages in the last 10 years

Future Water Constraints, and variation by Farm Characteristics

Over half of respondents are concerned about current or future water availability, constraining their farming business (Figure 24).

Farmers holding abstraction licences tended to express greater concern about water availability than those without licences.

When analysed by farm type, arable operations reported the most serious economic impacts from past water shortages (Figure 25). Arable farmers were also more likely to indicate that water availability already constrains their current operations, whereas higher proportions of beef and sheep, dairy, and mixed farming enterprises expressed concern about future constraints rather than current limitations.

A potential avenue for future engagement would be to explore whether farmers reporting no concern about water availability would reassess their position when presented with information on water supply and demand dynamics, climate change projections, and the National Framework for Water Resources.

This would provide valuable insight into whether low levels of concern reflect a knowledge gap or an informed awareness of future water constraints, and could inform the design of targeted communication and engagement strategies accordingly.

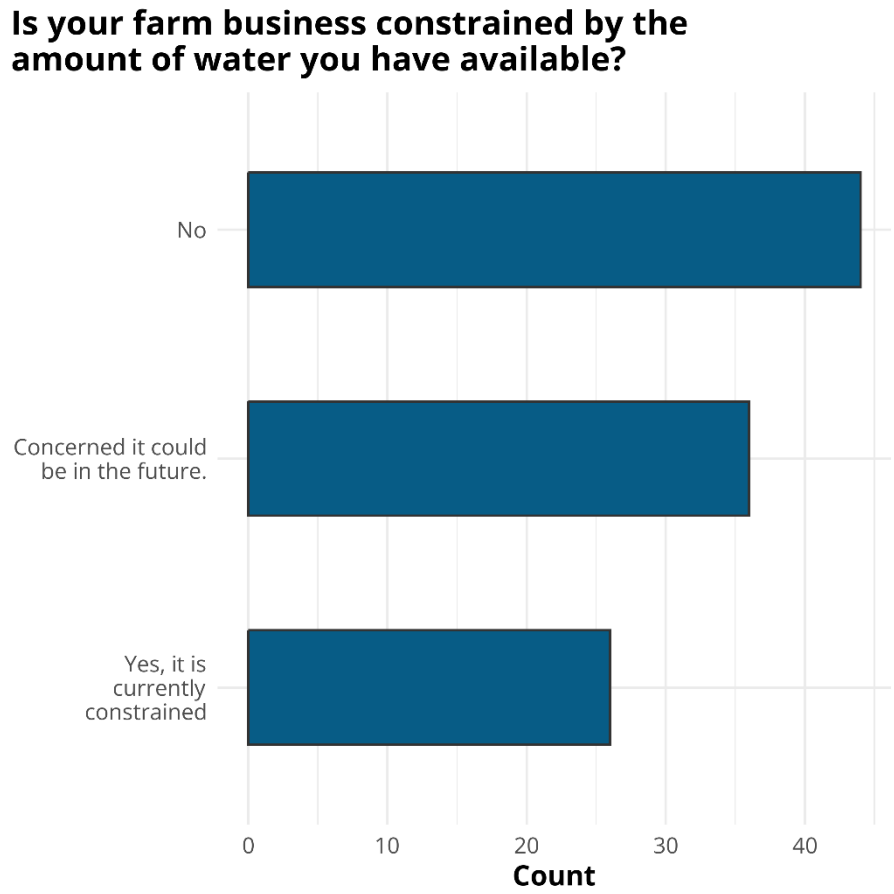


Figure 24: Water availability constraint status among respondents

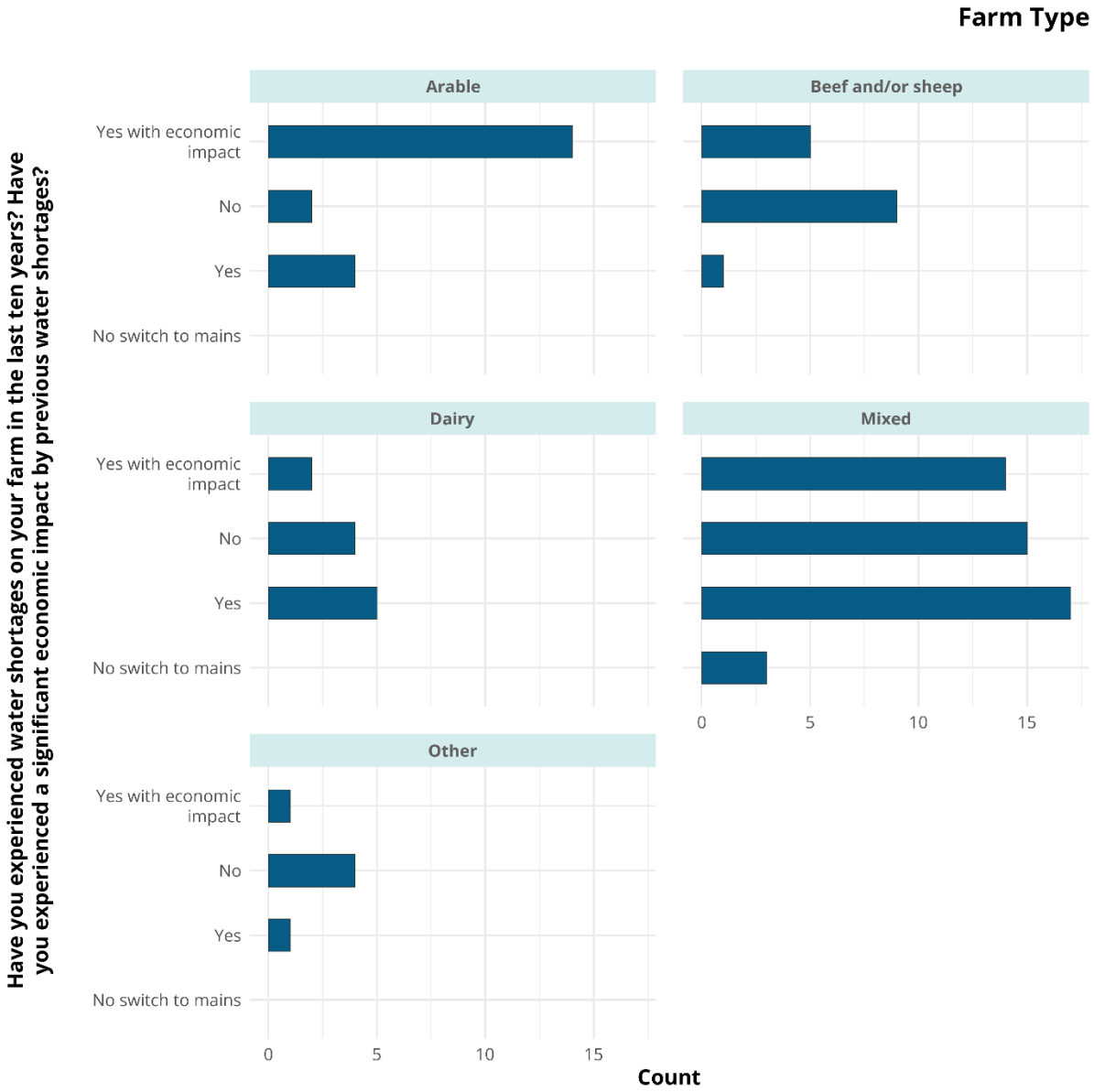


Figure 25: Experience of water shortages in the last 10 years by farm type

Regional Differences

Westcountry farmers were least likely to report water availability constraints, with only 11% experiencing current constraints and 32% concerned about future availability (Figure 26). In the Trent RT area, 42% of respondents indicated they were neither currently constrained nor concerned about future constraints — a surprisingly high proportion given the catchment's arable farming intensity. Nevertheless, 58% of Trent RT farmers expressed concern about either current or future water availability.

Farmers in the Essex and Suffolk RT area demonstrated the highest level of concern, with 93% of respondents indicating worry about water availability either currently or in the future.

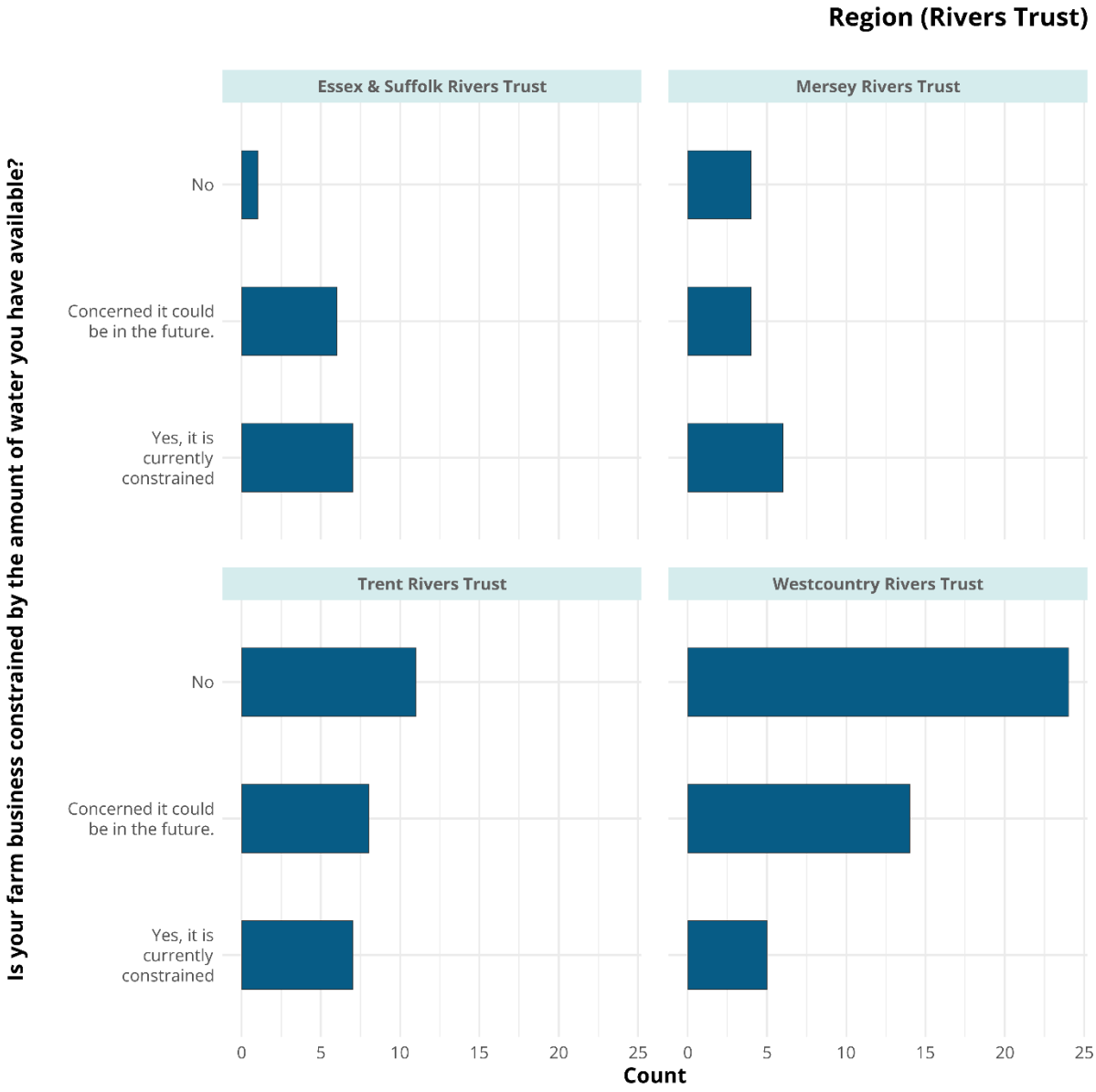


Figure 26: Water availability constraint status across four main RT areas

2.9 Farm Environment

Flooding and Surface Water Issues

Three-quarters of respondents (76%) reported experiencing problems with flooding or surface water runoff on their farms (Figure 27). Common themes emerging from responses included:

- **Wet Patches and Waterlogged Fields:** The most commonly described issue. Many respondents reported wet patches, boggy areas, or fields lying wet during winter or following heavy rainfall. This was often linked to heavy soils, high water tables, or land at saturation point.
- **River and Floodplain Flooding:** A substantial proportion reported flooding caused by rivers overtopping their banks or backing up drainage systems, affecting fields, farmyards, and access routes. Several farms were situated on or adjacent to floodplains, making periodic inundation an accepted part of farm management.
- **Surface Water Runoff from Fields and Tracks:** Overland flow from fields, farm tracks, and driveways was widely reported, particularly on sloping land or during intense rainfall events. Several respondents noted runoff flowing towards streams or roads, creating both on-farm and off-farm impacts.
- **Farmyard Runoff and Drainage:** Runoff from yards, driveways, and buildings was a recurring theme. Respondents highlighted complications with historic drainage systems, cellar flooding, and road runoff from adjacent routes affecting their farmyards.
- **External Sources:** Several respondents identified water arriving from sources beyond their control, including neighbouring maize and potato fields, housing estates, roads, railways, dual carriageways, and a local watercourse, which overwhelmed their own drainage capacity.
- **Soil Compaction and Poaching:** Surface compaction caused by livestock, particularly in gateways and paddocks, was cited as a cause of runoff and erosion, with poached areas becoming problematic in wet conditions.
- **Erosion:** Erosion linked to surface runoff was mentioned by several respondents, particularly on sandy soils or steeply sloping land. Some noted rills or overland flow pathways as active issues.
- **Drainage Infrastructure Problems**: A number of respondents highlighted issues with drainage ditches, culverts, and pumping stations either becoming overwhelmed, blocked, or poorly maintained. One respondent noted 20–30 years of downstream ditch neglect.

Current mitigation efforts and an interest in solutions included:

- **Active Management Measures:** Several respondents were already implementing mitigation measures, such as hedge planting, no-till farming, clean and dirty water separation, regenerative practices, ponds, trenches across slopes, and tree planting on ridges.
- **Interest in NFM Solutions:** Several respondents expressed enthusiasm for natural flood management interventions, including new ponds, beaver reintroduction, and landscape-scale water slowing measures. Some specifically indicated interest in funding support to take this further.

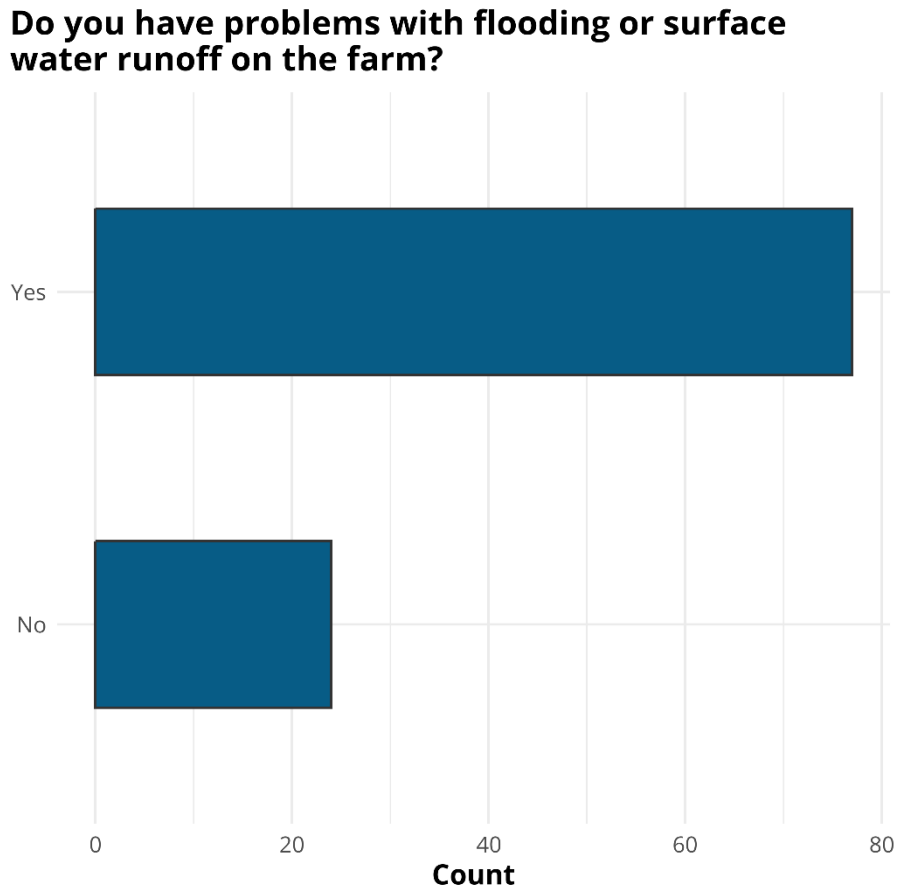


Figure 27: Prevalence of flooding or surface water runoff problems

Connection between Water Scarcity and Flooding

Analysis demonstrated that farms experiencing water availability constraints were also likely to face flooding or surface water runoff problems (Figure 28). Water Net Gain aims to address both challenges simultaneously by capturing and storing water during periods of excess for use during periods of scarcity.

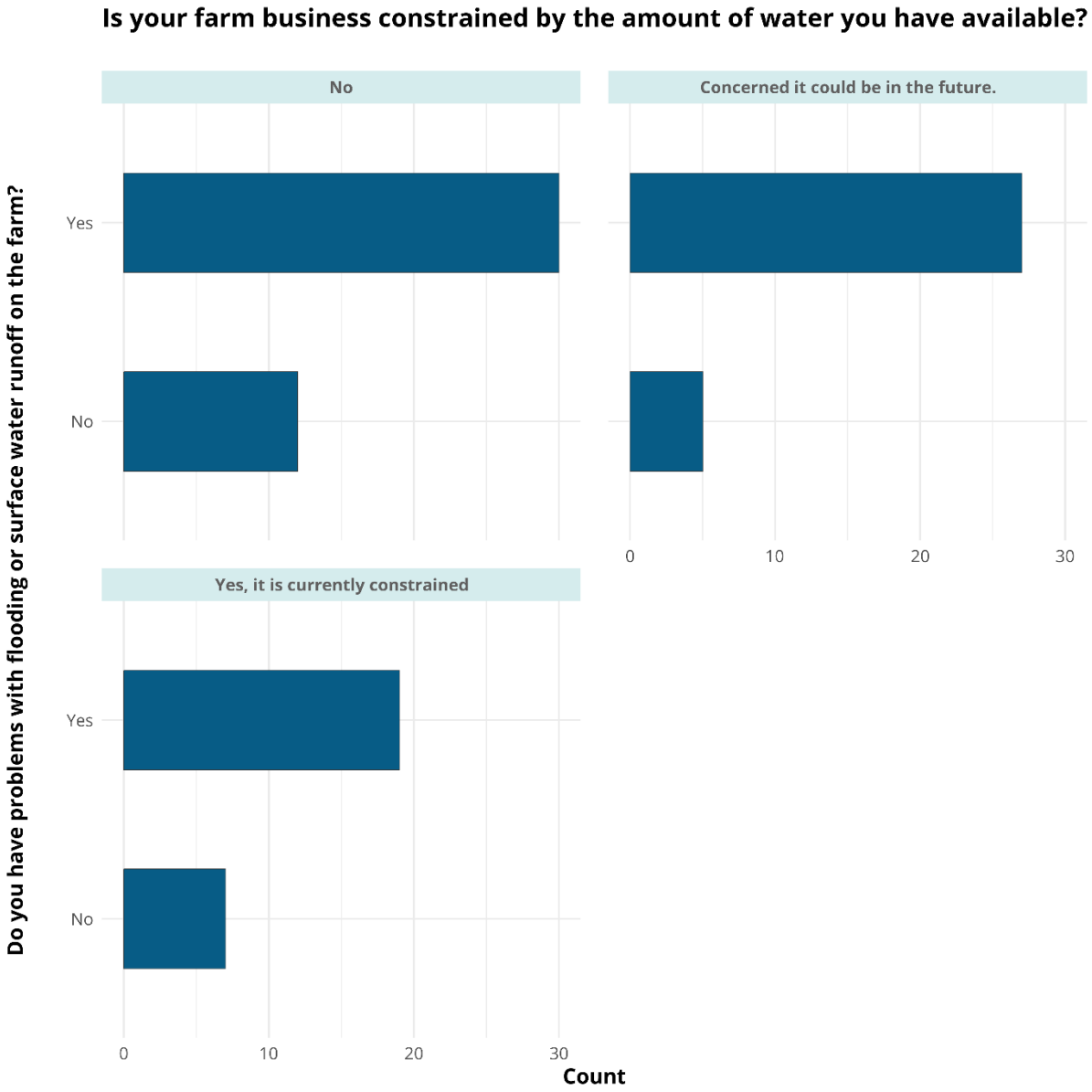


Figure 28: Prevalence of flooding or surface water runoff problems, by water availability constraint status

Environmental Practices and Landscape Features

Nearly all survey respondents employed practices or maintained landscape features that provide environmental benefits (Figure 29). This may reflect survey participant selection bias, as farmers with existing environmental interests may

have been more inclined to participate. Additionally, features such as hedgerows, trees, and ponds may represent existing landscape elements rather than actively managed environmental interventions.

The adoption of specific practices varied by catchment characteristics. Cover crops were particularly prominent in the more arable catchments (Trent and Essex and Suffolk RT areas), whereas hedgerows and trees featured more prominently in the Mersey and Westcountry RT areas.

Additional environmental practices reported included:

- Herbal leys
- River restoration and wetland creation
- Leaky dams
- Organic matter enhancement
- Agroforestry systems
- Shakerator and slitter use
- Companion cropping
- Arable reversion to grassland

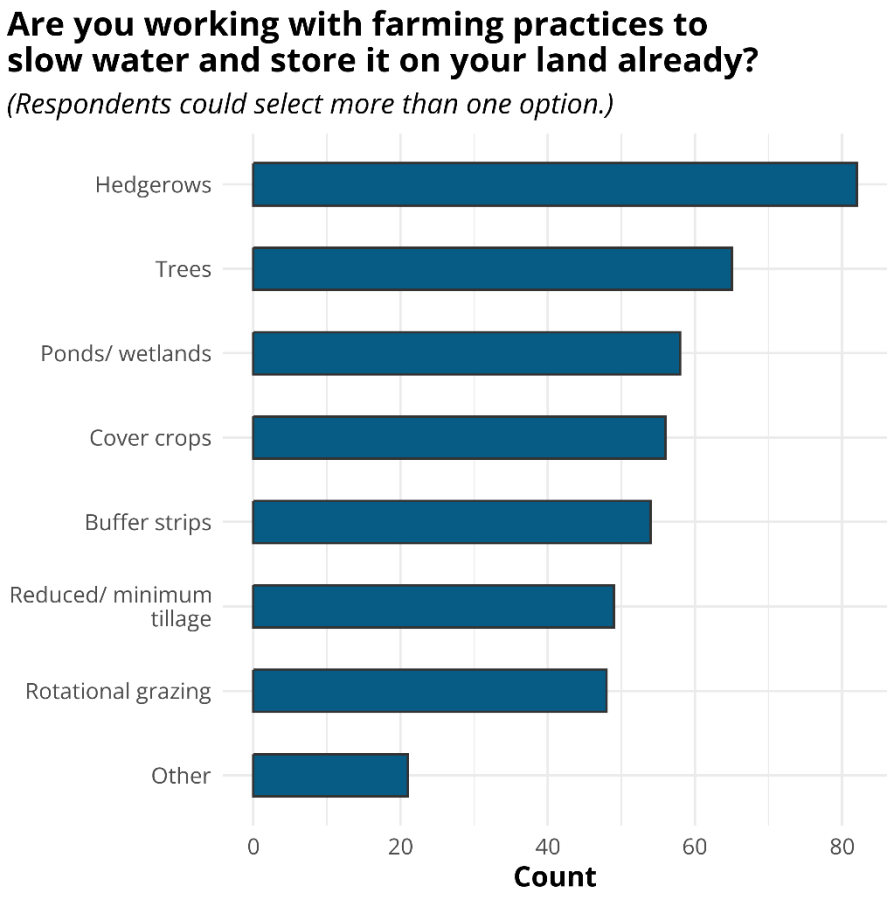


Figure 29: Prevalence of farming practices to slow and store water

2.10 Ponds

Interest in Pond Creation

The majority of respondents (94 of 109) had considered creating ponds on their land (Figure 30). Most had considered ponds for biodiversity or amenity purposes, while 46 considered them for natural flood management and 38 as an alternative water source.

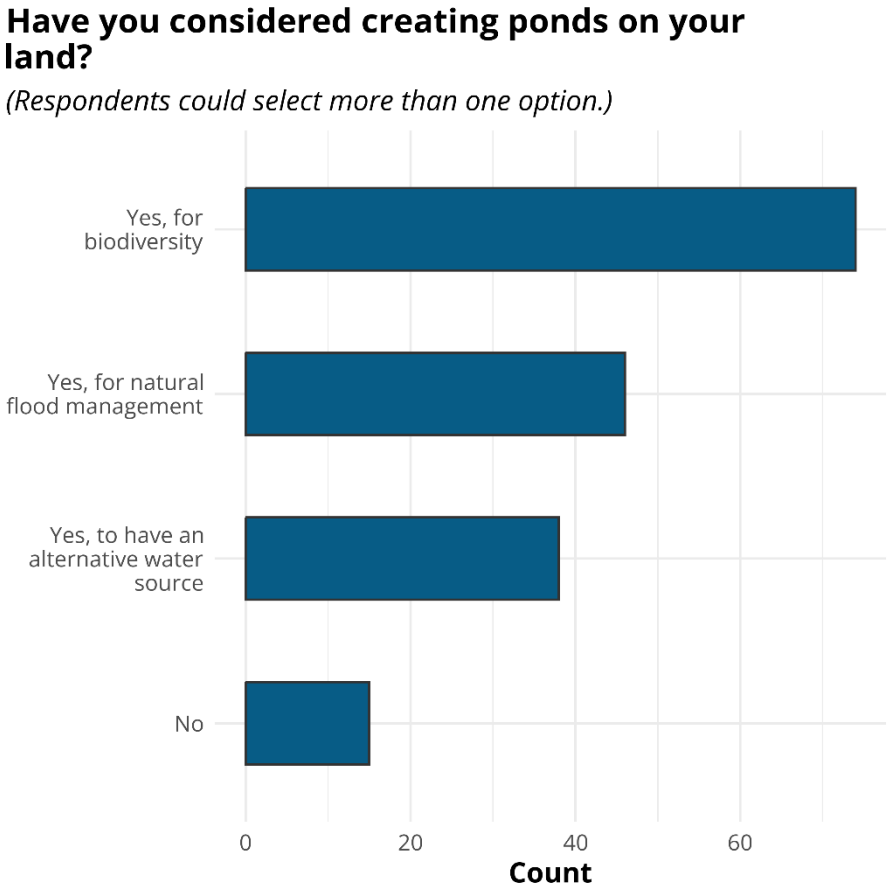


Figure 30: Consideration of pond creation on farmland

Farmers experiencing water availability constraints were more likely to consider ponds as a potential water resource (Figure 31).

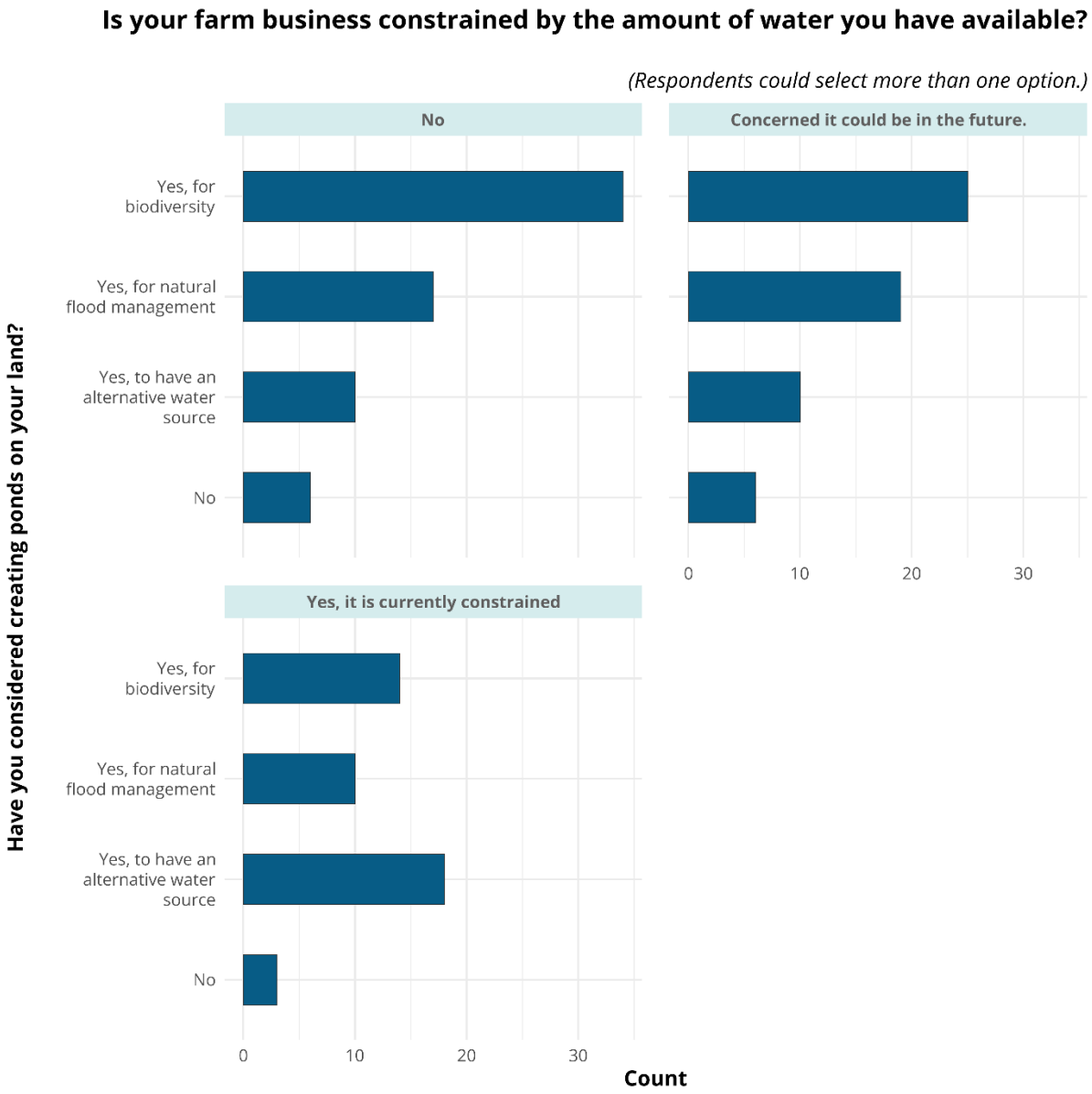


Figure 31: Consideration of pond creation on farmland, by water availability constraint status

Existing Infrastructure with Restoration Potential

A substantial proportion of respondents (29%) reported having silted-up ponds on their land that could potentially be restored for water storage purposes.

Additional redundant infrastructure identified as suitable for retrofitting as Water Net Gain ponds included:

- Old canal sections
- Wet woodland areas

- Disused sewage works chambers
- Old reservoirs
- Historic well systems
- Disused boreholes
- Highway drainage lagoons
- Old marl pits

Intended Uses for Pond Water

Many respondents indicated potential uses for pond water, including crop irrigation and spraying, and livestock drinking water. Approximately one-quarter stated they would not use pond water for farming operations, most specifying that ponds would serve biodiversity purposes only, while others indicated no interest in ponds at all. Yard and equipment washing were also mentioned, though several respondents noted this represents a minor proportion of overall water use.

Analysis suggests a relationship between perceived water constraints and willingness to utilise pond water (Figure 32). Farmers not experiencing water constraints were more likely to indicate they would not use pond water for agricultural operations. Conversely, those facing greater water availability challenges expressed stronger willingness to use pond water. This relationship may also reflect differences between farm types, as arable farmers are more likely to use pond water for irrigation or spraying — applications where water quality concerns are less critical than for livestock drinking water.

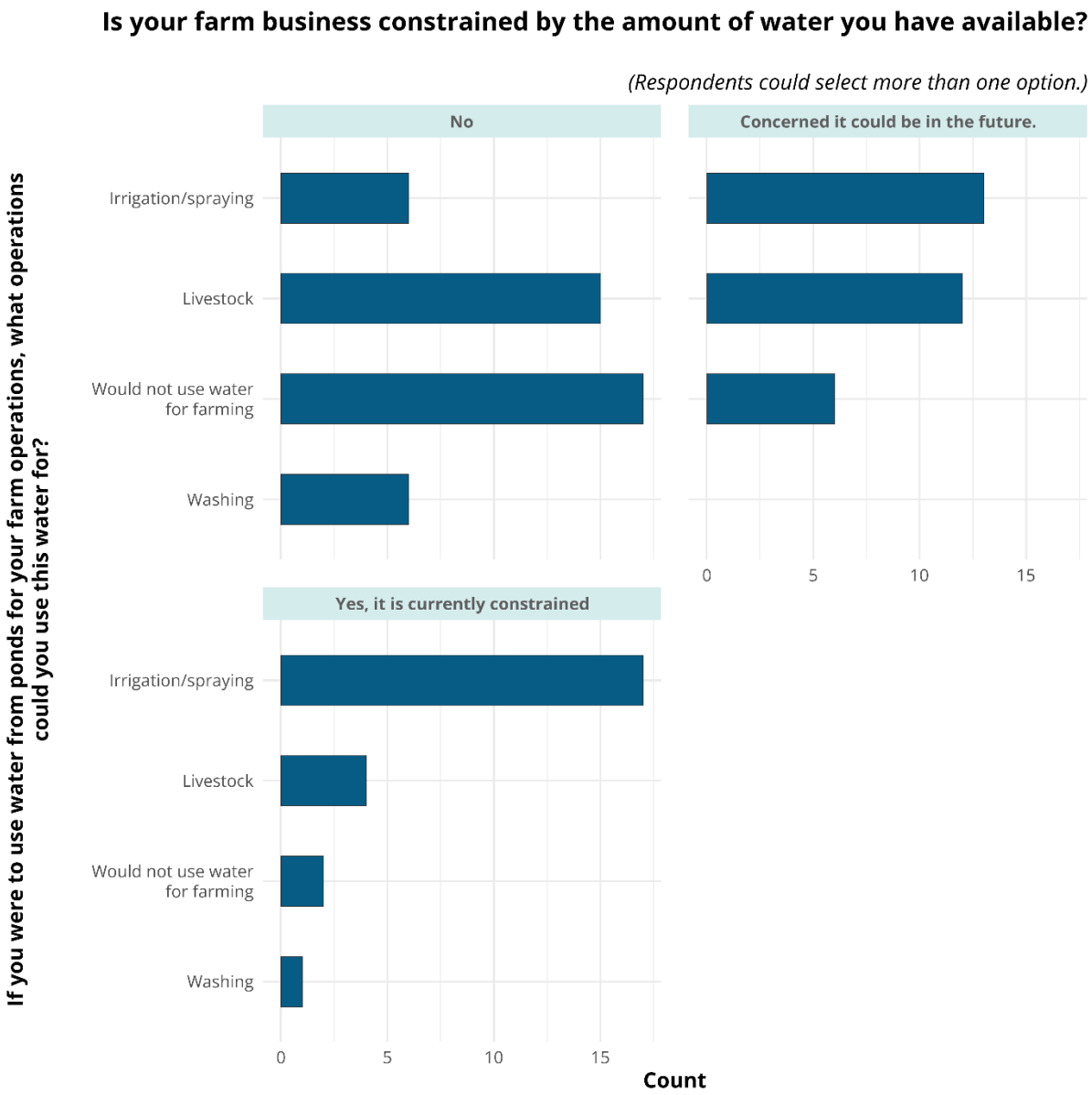


Figure 32: Pond water use cases for farming operations, by water availability constraint status

Infrastructure Requirements

Respondents identified the following equipment and infrastructure requirements for utilising pond water:

- **Pumping Systems** (most commonly mentioned): Electric pumps, solar pumps, ram/Papa pumps, suction hoses, and borehole pumps. Solar power was noted as necessary by some due to remote locations.
- **Pipework:** Pipes, pipe networks, and pipe laying were among the most frequently mentioned needs, often alongside pumps. One respondent noted the need to pump uphill, and another mentioned digging in a pipeline.
- **Filtration:** Filters were widely requested, including sediment filters, UV filters, solar water filtration, and general water quality testing. One

respondent raised biosecurity concerns about yard runoff contaminating pond water.

- **Storage and Distribution:** Header tanks, holding tanks, pressure vessels, storage tanks, troughs, and irrigation reels. Some respondents mentioned connecting to existing reservoir or irrigation systems.
- **Pond Infrastructure:** Pond liners, diggers for pond construction, small dam walls, concrete plinths for tanks, and flow control structures to divert peak flows into reservoirs.
- **Power Supply:** Electricity supply and solar power connections were flagged as requirements, particularly for remote locations.
- **No Additional Requirements:** Several respondents indicated they had no need for equipment, either because they have existing infrastructure, plan to give livestock direct water access, or do not intend to use the water.
- **Uncertain / Unsure** Several respondents had not yet researched requirements, or were unsure what would be needed.

Additional cost and infrastructure concerns are detailed in Appendix B.

2.11 A Water Net Gain Scheme for Farmers

Preference Assessment

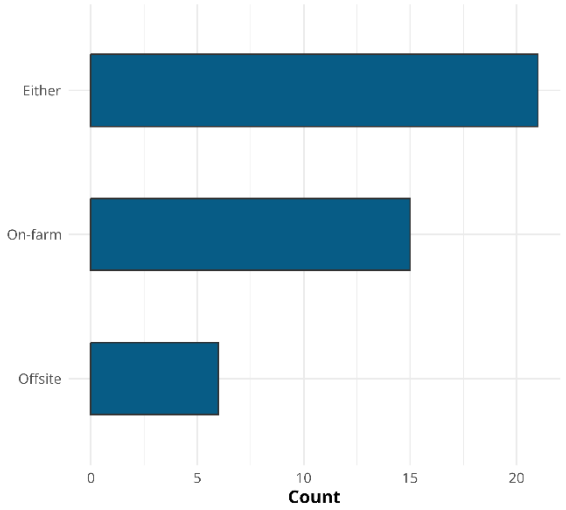
When scheme attributes were assessed individually, the following preferences emerged (Figure 33):

- Respondents were generally receptive to both demand ponds (on-farm water use) and supply ponds (off-site water provision), with a slight preference for on-farm water use.
- Most farmers considered pond area up to one acre acceptable.
- Considerable variation existed in acceptable contract lengths, reflecting the diversity of farm business structures. This may be related to succession planning: farmers with established succession plans appeared more willing to accept longer-term contracts than those without long-term business continuity arrangements.
- Many respondents indicated limited capacity to contribute substantial capital investment toward pond construction, as other business challenges may take priority (see Section 1.5).
- Respondents expressed preference for higher annual maintenance payments. The importance of maintenance funding is evidenced by the prevalence of silted-up ponds identified in Section 1.10. De-silting represents a substantial cost that farmers are not currently willing to bear independently. Historically, ponds have diminished in utility on farmland;

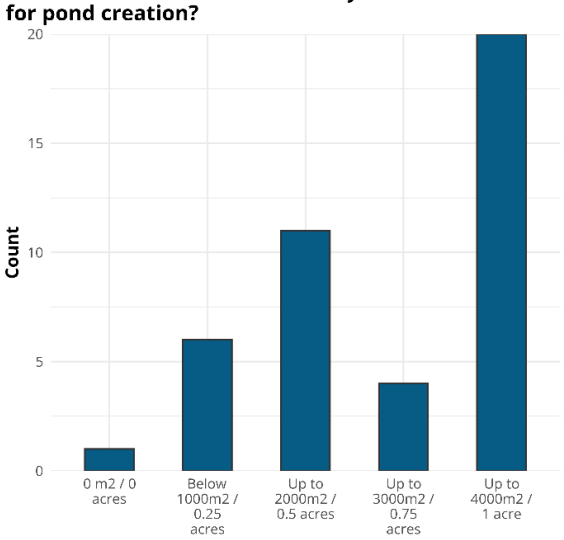
through Water Net Gain, ponds would regain importance either through water provision or as a diversification and income stream. This enhanced utility may increase willingness to invest in maintenance. Additionally, given that the question invited farmers to state their preferred payment level, responses naturally tended toward higher amounts.

Further design considerations and stakeholder perspectives are detailed in Appendix B. To better understand farmers' willingness to accept trade-offs between scheme attributes, a discrete choice experiment was conducted using specific scenarios (see Appendix A Comparison Between Simple Choice and Scenarios for a more detailed comparison of the two methodologies and their respective results).

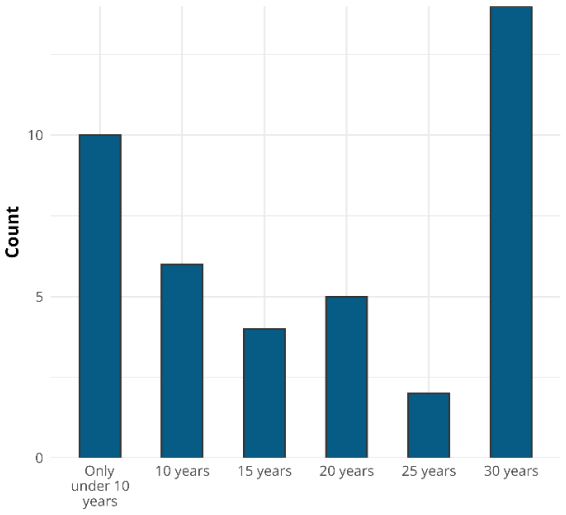
What would be the preferred use for the pond water - on-farm or offsite?



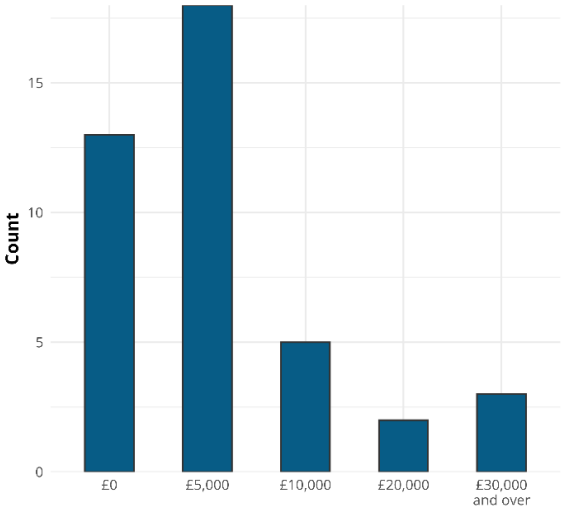
What is the maximum land area you would use for pond creation?



What is the maximum contract length you would be willing to commit to?



What is the maximum amount of investment you could contribute?



What maintenance payment (per year) would you require in order to ensure appropriate maintenance of the pond and surrounding area?

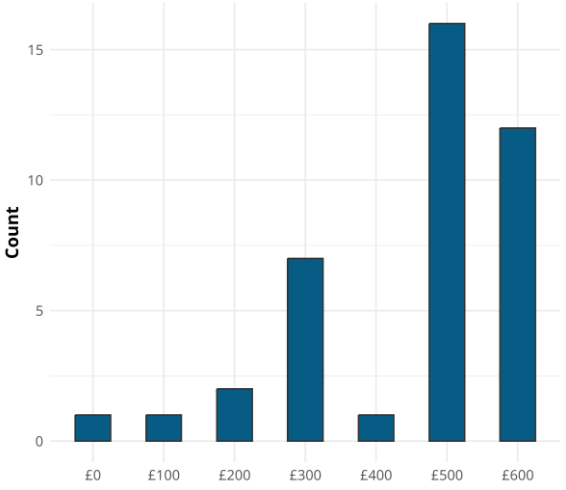


Figure 33: Stated preferences for a Water Net Gain scheme

Discrete Choice Experiment Results

The following scenarios were presented as part of the Discrete Choice Experiment:

Table 2: Discrete choice experiment scenario specifications

Parameter	Scenario 1 Small demand pond	Scenario 2 Medium demand pond	Scenario 3 Large demand pond	Scenario 4 Medium supply pond	Scenario 5 Large supply pond, 30 years	Scenario 6 Large supply pond, 20 years	Scenario 7 Existing Infrastructure
Pond type	Demand (on-farm use)	Demand (on-farm use)	Demand (on-farm use)	Supply (off-site use)	Supply (off-site use)	Supply (off-site use)	Supply (off-site use)
Pond area	0.5 acres (2,000m²)	0.75 acres (3,000m²)	1 acre (4,300m²)	0.75 acres (3,000m²)	1 acre (4,300m²)	1 acre (4,300m²)	Site-specific
Water volume	1,700m³	4,400m³	6,600m³	N/A	N/A	N/A	N/A
Contract length	15 years	10 years	10 years	15 years	30 years	20 years	15 years
Total installation cost	£28,500	£44,000	£87,000	£39,500	£94,000	£94,000	Site-specific
Grant payment	£18,500	£24,000	£57,000	£29,500	£89,000	£89,000	£0
Farm investment required	£10,000	£20,000	£30,000	£10,000	£5,000	£5,000	Estimate £6,000-38,000
Land compensation	£0	£5,000	£10,000	£15,000	£20,000	£15,000	£0

Parameter	Scenario 1 Small demand pond	Scenario 2 Medium demand pond	Scenario 3 Large demand pond	Scenario 4 Medium supply pond	Scenario 5 Large supply pond, 30 years	Scenario 6 Large supply pond, 20 years	Scenario 7 Existing Infrastructure
Annual maintenance payment	£300	£200	£0	£200	£600	£500	£0.22 per m^3

Supply pond schemes appeared to be more popular than demand ponds (Figure 34). This preference likely reflects the higher payments offered for supply ponds. Additionally, some farmers expressed no interest in, or practical ability to use, pond water on their own operations but were willing to allocate land for environmental benefit given appropriate compensation. However, comments clarified that substantial payments would be required to make such schemes attractive, as farmers would derive no direct operational benefit.

Small and large ponds were selected more frequently than medium-sized ponds, likely reflecting the differing water requirements of participating farm types:

- Livestock farmers, requiring steady but lower water volumes, do not need large pond capacity for water supply.
- Arable farmers, requiring large volumes during short periods, benefit from larger pond capacity.

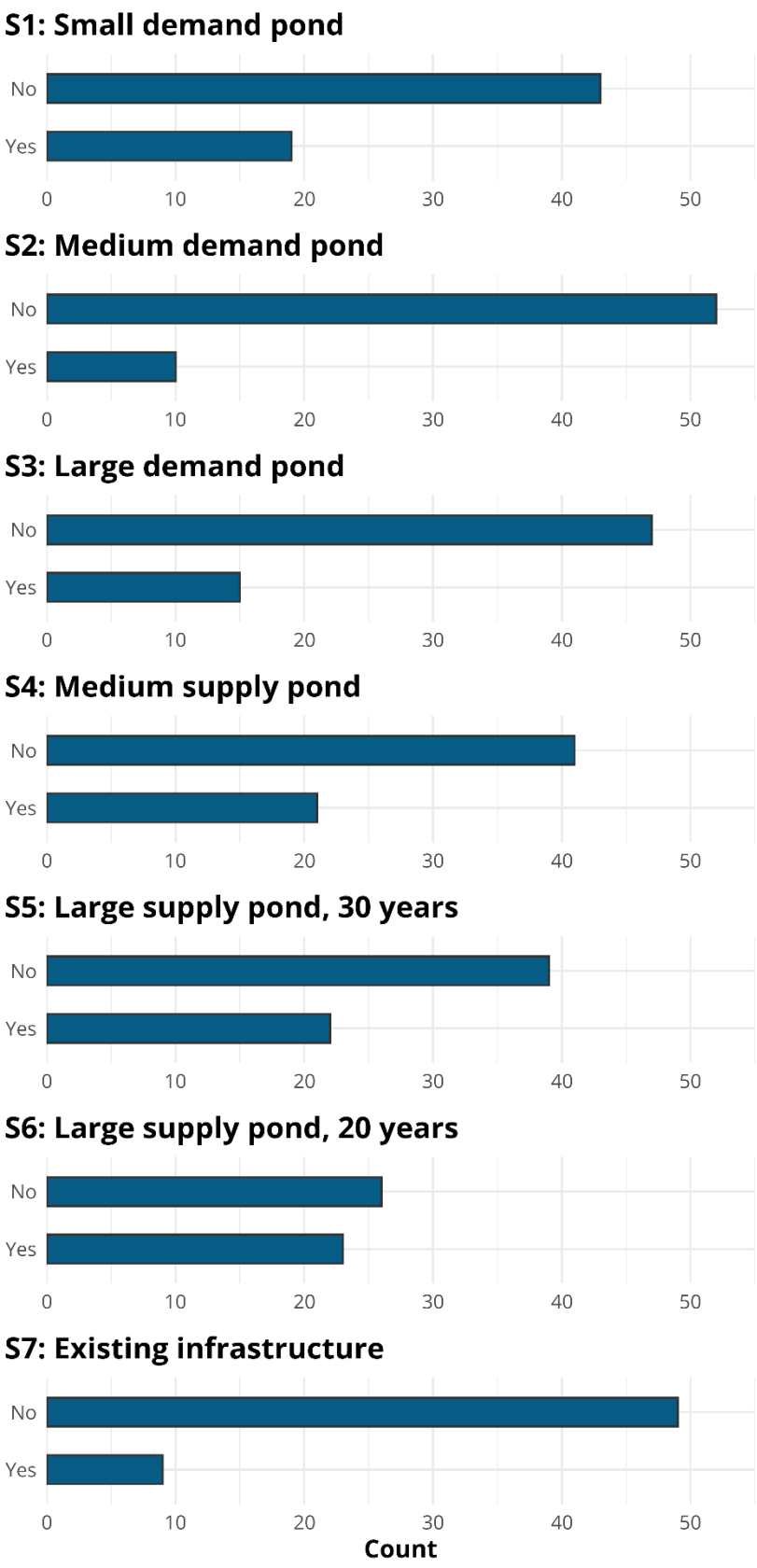


Figure 34: Discrete choice experiment results for specific Water Net Gain scheme scenarios

Scenario-Specific Feedback

Scenario 1 Small demand pond:

Positive Responses:

- Small pond size considered preferable by some respondents
- Desire for water self-sufficiency
- Estimated costs and payments deemed reasonable
- Suitable scale for farms with spatially separated land parcels

Concerns and Objections:

- Requiring complete disconnection from mains water would be unacceptable; farmers would need to retain access to mains
- Water company ownership of pond water was unacceptable
- For smaller operations, even this pond size was too large, required investment too high, or return on investment insufficient
- For larger operations, water volumes too small to be useful
- Some farmers already enjoy free water supply, providing no financial incentive to participate
- Some farmers unwilling to use pond water
- Infrastructure challenges in connecting pond water to farm operations
- Preference for rainwater harvesting tanks over ponds
- Rainwater harvesting tanks can be removed at tenancy end, whereas ponds remain with the landowner
- Insufficient on-farm space for ponds
- Water quality concerns and filtration costs
- Maintenance payments considered too low
- Land compensation inadequate relative to land area required
- Interest contingent on shorter contract length
- Covenants would make participation unacceptable
- Preference for simpler, more naturalistic pond designs
- Surface water runoff not relevant for some farms
- Unsuitable soil types or land characteristics

Additional Considerations:

- Contracts would require landlord consent
- Uncertainty about water availability when needed
- Concerns about required permissions
- Substantial investment in pumps and pipework required
- Uncertainty about contract transferability upon farm sale

- Decision authority rests with estate land agents in some cases

Scenario 2 Medium demand pond: *(Comments additional to Scenario 1)*

Positive Responses:

- Receptive to proposals representing sound business decisions

Concerns and Objections:

- Scenario 1 preferred due to adequate water volumes
- Scenario 1 preferred as higher investment unjustified for business needs
- Maintenance payments too low

Additional Considerations:

- Maintenance payments considered both useful and necessary

Scenario 3 Large demand pond: *(Comments additional to Scenario 1)*

Positive Responses:

- Water volumes should reach to just below Reservoirs Act thresholds
- Up to one acre considered acceptable
- More appropriate scale for operations
- Contract lengths up to 15 years feasible
- Even modest water provision could prove valuable during restricted supply years

Concerns and Objections:

- Reluctance to remove productive land, potentially affecting prime wildlife habitat areas
- Water volumes still insufficient for some operations

Additional Considerations:

- Greater certainty needed regarding abstraction licensing

Scenario 4 Medium supply pond:

Positive Responses:

- Up to one acre acceptable
- Interest in grant funding for pond improvements supporting natural flood management or biodiversity

- Strong interest in providing water as a service, particularly with biodiversity co-benefits
- Willingness to work with existing ponds, though not to create new ones
- Attractive option for unproductive land areas
- With funding available, other scheme attributes become less critical
- Short contract length appealing
- Desire for renewal option given short contract term
- £15,000 per acre considered reasonable, particularly with retained land ownership
- Financial incentives essential given absence of direct farm business benefit

Concerns and Objections:

- On-farm water use considered more important
- Water volumes too small unless developed as proper reservoir
- Scale too large for some operations, or insufficient space on farm
- Maintenance payments or income too small
- Insufficient investment return for farm business
- Participation contingent on returns exceeding £1/m² of pond area
- Participation contingent on returns exceeding £2,000/acre
- No volume-based payment for water deployment to watercourses
- Alternative proposal: Provide farmers with lump sum payment requiring retention of specified water volume, with farmers retaining flexibility in implementation approach
- Short contract length required due to land tenure uncertainty
- Preference for more natural flood management options
- Desire to retain control over water
- Perceived as too risky compared to alternative options such as Biodiversity Net Gain or land development

Additional Considerations:

- Concerns about financial risk if construction costs exceed estimates
- Uncertainty about inclusion of preparatory works such as tree removal
- Uncertainty about spoil removal responsibility
- Not relevant for tenant farmers – Scenario requires landowner decision
- Uncertainty about scheme effectiveness
- Questions about water availability when needed
- Uncertainty about land status following scheme conclusion (will it be reverted back to farmland?)

- Concerns about planning permission requirements

Scenario 5 Large supply pond, 30 years *(Comments additional to Scenario 4)*

Positive Responses:

- Contract length acceptable as pond is permanent, and it aligns with Biodiversity Net Gain timescales
- Preference for longer contract lengths
- Maintenance payment considered good value
- Attractive business proposition
- Preferred over Biodiversity Net Gain

Concerns and Objections:

- Land compensation payment insufficient when distributed across 30-year period
- 30-year contract length requires committing subsequent generation, which is undesirable
- Longer contract length less attractive
- Concerns about inheritance tax implications

Additional Considerations:

- Requires comparison against alternative schemes (e.g., Environmental Land Management)
- Financial incentives essential given absence of direct farm business benefit

Scenario 6 Large supply pond, 20 years *(Comments additional to Scenario 4)*

Positive Responses:

- Shorter contract length preferred
- Maintenance payment considered good or sufficient
- Potentially viable

Concerns and Objections:

- Concerns about land management restrictions around pond
- Preference for retaining floodwater (rather than surface water runoff) for deployment during dry periods

Additional Considerations:

- Questions about inflation indexation of maintenance payments
- Capital payment support most important element across Scenarios 4-6
- Interest in fixed payment value allowing farmers to profit if actual contractor costs lower than budgeted

Scenario 7 Retrofitting existing infrastructure:

This scenario applied only to farms with existing water storage infrastructure. Responses were highly specific to individual circumstances:

Positive Responses:

- Willingness to explore retrofitting existing infrastructure for off-site water provision, augmenting summer flows with captured winter rainfall, with contracts of 15+ years acceptable
- Potential to reactivate disused wells if financially supported, though requiring resolution of water distribution infrastructure
- If a significantly larger reservoir could be built in addition, then the existing smaller reservoirs would become available for retro-fitting.
- Interest contingent on manageable retrofitting costs and availability of capital grants for major works such as relining or pump installation
- Interest expressed for water trading payments exceeding £1/m³

Concerns and Objections:

- Mostly not applicable to respondent circumstances
- Retrofitting not feasible without capital investment support
- Repurposing existing reservoir capacity for Water Net Gain would require ending potato production (and associated irrigation). Water trading prices would need to exceed current irrigation water charges (£0.27/m³) to justify this change; Scenario 7 as presented not financially attractive

Absence of Scenario Support

Nineteen of 63 in-person interview respondents (30%) indicated they would not participate in any scenario. The majority of these came from the Trent RT area, with a smaller proportion from the Westcountry RT and Essex and Suffolk RT areas; no respondents from the Mersey RT area fell into this group. Most farmed arable land, or operated mixed arable and livestock systems.

The reasons given for declining to participate in Water Net Gain were:

- Water ownership by the water company
- Not financially viable
- No need for an alternative water source
- Insufficient scale for irrigation purposes
- Lack of suitable locations
- Decision-making authority held by a third party (such as a land agent or landowner)

These findings offer useful guidance on which audiences and areas may be well-suited to Water Net Gain, as well as those where engagement is unlikely to be productive and resources need not be directed.

However, comments suggested that adapted scheme designs might change this position for some:

- *"The water company owning the water is a serious constraint"* – For demand ponds, water ownership would remain with the farmer
- *"Water company turning off the mains supply would be a no-go. What would happen if the pump broke? Then no water would be available at all. Potentially yes otherwise."* – Schemes should retain flexibility for emergency mains water use and for operations requiring potable water

Additional comments on contract structures, tenancy arrangements, and funding mechanisms are compiled in Appendix B.

Key Findings

Analysis of the discrete choice experiment revealed:

- **Substantial external investment is required** to make Water Net Gain schemes viable for farm participation.
- **For demand ponds**, farmers would accept lower maintenance payments where additional on-farm water is sufficiently valued.
- **Scheme design must be adaptable** to accommodate diverse farm business structures and circumstances.
- **For supply ponds**, farmers would consider participation if compensation is appropriate; payment levels are more influential than contract length or land area requirements in determining willingness to participate.

3. Regional Variations and Implementation Considerations

Farm advisor insights from the four focus areas revealed distinct regional characteristics influencing Water Net Gain viability and design requirements (Table 3).

Table 3: Regional characteristics and Water Net Gain suitability by catchment

Characteristic	Tamar (Westcountry RT)	Colne (Essex and Suffolk RT)	Idle (Trent RT)	Downholland and Dean (Mersey RT)
Main farming sectors	Livestock	Arable	Arable	Mixed (vegetable growers, beef, equestrian)
Primary water sources	Boreholes, mains water	River abstraction, reservoirs, mains water	River and borehole abstraction	Mains water
Main water demand	Livestock drinking water	Irrigation, livestock drinking water	Irrigation	Irrigation, livestock drinking water
Demand pond suitability	Small to medium size appropriate	Often too small for irrigation needs	Often too small for irrigation needs	Features combining flood risk reduction and cost-effective storage
Supply pond interest	Strong interest among low-intensity/nature-friendly farmers as diversification	Open but financial incentives must compete with cropping or BNG	Limited interest without direct farm benefit	Limited interest without direct farm benefit

Catchment-Specific Considerations

Tamar (Westcountry RT):

- Competing farm priorities necessitate substantial external investment for participation
- Potential for win-win outcomes among farms with high livestock drinking water requirements
- Water quality concerns require careful consideration

Colne (Essex and Suffolk RT):

- Strong interest in Local Resource Option studies
- Water Net Gain potential particularly relevant for non-arable farms relying on mains water (livestock or horticulture operations)
- Interest in rainwater harvesting solutions
- Uncertainty regarding abstraction licensing and monitoring requirements

Idle (Trent RT):

- Internal Drainage Boards represent catchment-specific stakeholder group (lower catchment)
- Retailer requirements constitute important consideration for farmers
- Existing drainage network requiring high pumping capacity presents opportunity: pumped water could be diverted to reservoir storage
- Interest in rainwater harvesting solutions
- Joint venture approaches welcomed

Downholland and Dean (Mersey RT):

- Issues of excess water (flooding, waterlogged fields) more prominent than water scarcity
- Uncertainty surrounding environmental schemes and future policy developments reduces trust and long-term commitment capacity
- Scheme participation requires clear demonstration of cost reduction or water resilience benefits

Cross-Cutting Implementation Requirements

Several requirements emerged consistently across all catchments:

- **Water use monitoring**: Many farmers do not currently monitor actual water consumption, presenting challenges for scheme design and impact assessment
- **Financial support**: External financial support is essential for capital-intensive investments
- **Local adaptation**: Water resilience measures must be tailored to individual farm business requirements and catchment-specific conditions to achieve viability and uptake

4. Conclusion

This Water Net Gain farmer survey reveals both clear opportunity and substantial design challenges for scheme implementation across England.

The dual water challenge facing many farms — experiencing both water scarcity during dry periods and flooding during wet periods — creates clear potential for Water Net Gain solutions. With 59% of respondents having experienced past water shortages causing economic impacts, and 76% experiencing flooding or surface water runoff problems, the case for water capture and storage is evident. Furthermore, widespread environmental engagement, near-universal consideration of pond creation, and substantial existing infrastructure suitable for restoration or retrofitting provide a strong foundation for scheme development.

However, translating this potential into participation requires careful attention to scheme design. The discrete choice experiment revealed that while farmers are receptive to both demand ponds (on-farm use) and supply ponds (off-site provision), willingness to participate depends critically on financial structures, scheme flexibility, and adaptation to local circumstances. Payment levels emerged as the most influential factor — more so than contract length or land area — with substantial compensation essential for supply ponds providing no direct operational benefit, while lower payments may suffice for demand ponds where on-farm water value is clear.

Several design requirements proved non-negotiable for many respondents: retained emergency access to mains water supplies, farmer ownership of water from demand ponds, accommodation of diverse land tenure and succession planning situations, and provision of maintenance funding to prevent the abandonment that has affected existing ponds. The finding that approximately 40% of farmers lack alternative water sources yet nearly half cannot quantify

their consumption underscores the need for foundational support in water monitoring and resilience planning alongside pond infrastructure.

Regional variations across the four focus catchments demonstrate that no single national template will succeed. Catchment characteristics — including dominant farm types, existing water sources, primary water demands, stakeholder landscapes, and the relative prominence of scarcity versus excess water challenges — must inform locally adapted scheme design. The strong interest in collaborative approaches through Local Resource Options and Water Abstractor Groups in some catchments suggests valuable mechanisms for catalysing participation and enhancing outcomes.

Water Net Gain presents a genuine opportunity to enhance farm water resilience while delivering environmental benefits. Realising this opportunity requires schemes that are well-resourced, locally adapted, and sufficiently flexible to accommodate the legitimate diversity of farm business circumstances across England's agricultural sector.

Appendix A: Methodology

Survey Objectives

This study aimed to engage over 100 farmers across multiple water company service areas to understand their attitudes towards participating in a WNG scheme. The survey aimed to inform scheme design by identifying:

- Whether a water resilience scheme was needed in the agricultural sector
- Whether the proposed business case appeals to farmers
- Acceptable thresholds for different scheme variables
- Necessary adjustments to improve scheme acceptability

Preparation Phase (January – August)

The preparation phase involved extensive stakeholder engagement, including coordination with water companies to identify priority catchment areas and establishing partnerships with local Rivers Trusts. Four focus catchments were selected (Figure 35):

- Idle catchment (Severn Trent Water, Trent Rivers Trust)
- Downholland and Dean (United Utilities, Mersey Rivers Trust)
- River Colne (Anglian Water, Essex and Suffolk Rivers Trust)
- Tamar (South West Water, Westcountry Rivers Trust) – All results from the Westcountry Rivers Trust area were reported together

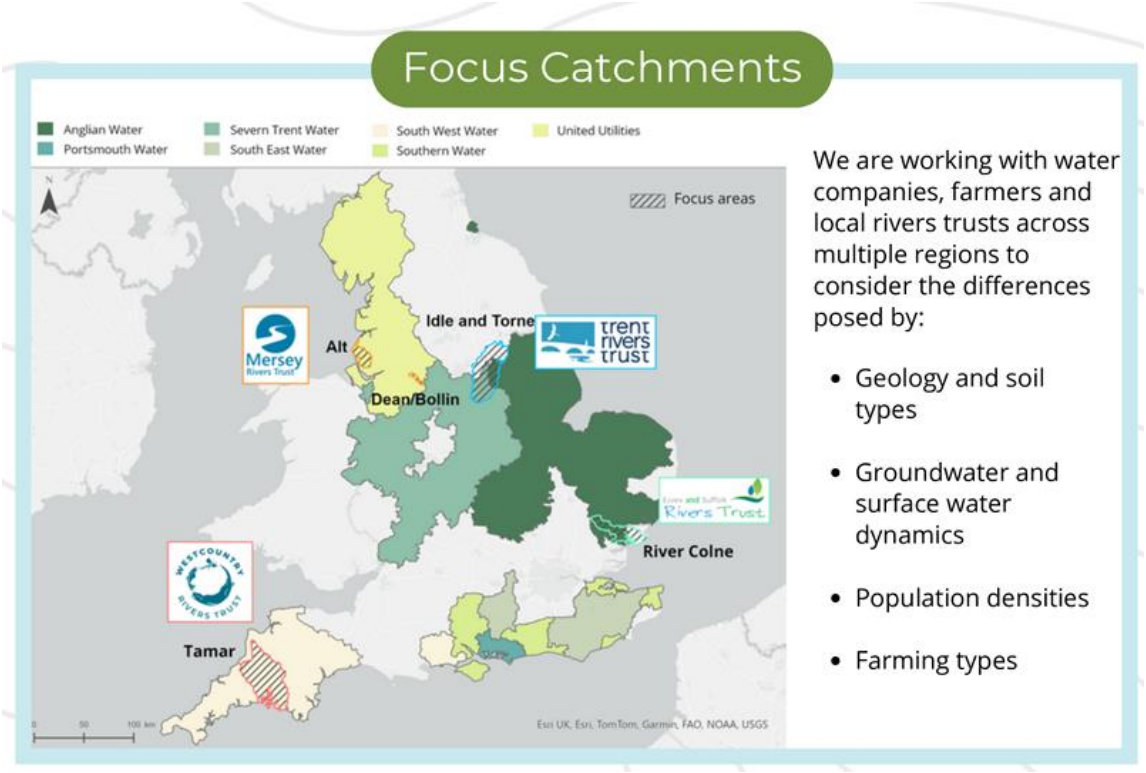


Figure 35: Map of Water Net Gain partner water companies, and focus catchments (hatched areas)

Research was conducted into water resilience issues specific to each catchment, alongside development of survey instruments.

Two survey formats were created:

- An online version with multiple choice and open-answer questions
- An in-person version with multiple choice and open-answer questions, but adding a discrete choice experiment. This was more complex, and was therefore guided by a farm advisor.

A kick-off meeting with local farm advisors provided valuable insights on farm water systems, rainwater harvesting, tax considerations, and mapping techniques.

Data Collection (September – January)

Farm visits included structured questions about farm operations and water resilience, willingness-to-accept scenarios presented in discrete choice format, and on-farm mapping exercises to identify potential implementation sites and water usage patterns.

The online survey was distributed through multiple channels: existing WNG farm contacts, farm advisors, the NFU, water companies, environmental organisations, and social media platforms.

Analysis

Local farm advisors prepared catchment-specific reports capturing broader sentiments and views gathered during conversations. Analysis focused on identifying trends across all survey questions, with findings summarised in one-page sheets tailored to different audiences: farmers and supply chain stakeholders, water companies and the Environment Agency, and Rivers Trusts. Full results are presented in this report, and can be used for further evidence, as required.

Comparison Between Simple Choice and Scenarios

A key methodological limitation of the online survey relates to the questions on a potential Water Net Gain scheme. Because respondents were free to select their preferred level of upfront investment and annual maintenance payment, it is unsurprising that they tended to minimise their own costs while maximising the payments they would receive.

This pattern is evident in the survey results: 75% of respondents indicated a maximum upfront investment of £5,000 for a Water Net Gain pond, with only 25% willing to invest between £10,000 and £30,000.

To address this bias, the in-person interviews used a different approach, presenting respondents with discrete scenarios and asking them to give a binary yes or no response to participating in a specific scheme. Of the six main scenarios presented, four involved an upfront investment of £10,000 or more. Notably, 63% of respondents agreed to at least one of these four higher-investment scenarios, suggesting a meaningful willingness to consider greater upfront costs when given a concrete scheme and the opportunity to explore its potential benefits in detail.

A similar pattern emerged for maintenance payments. When required to either accept or decline a specific scheme, 63% of respondents were willing to participate at maintenance payment levels of £300 or less. By contrast, when given a free choice, 70% selected the highest available annual payments of £500 or £600.

Lessons Learned

What worked well:

- Extended preparation time facilitated effective staff resourcing, research, and stakeholder engagement
- Initial questionnaire on farm operations and water pressures quickly established a clear picture of current practices
- Informal discussions yielded valuable insights beyond structured survey responses
- Mapping exercises enabled tangible, site-specific discussions about potential pond locations
- Business-focused scenarios prompted concrete responses about acceptable payment levels — leading to responses such as "*I wouldn't do it for less*", rather than "*It depends on how much it would cost*"

Barriers and limitations:

- Scenarios were overly complex and insufficiently realistic for this stage of scheme development
- Presenting scenarios prematurely may have created unrealistic payment expectations and potentially undermined trust in environmental schemes
- Water usage data was frequently unavailable, limiting analysis
- Recording specific environmental issues (pollution, eutrophication, drought impacts) would have better demonstrated how WNG could address local problems
- Clearer communication about how responses would be used and the timeline for scheme implementation would have been valuable

- The survey likely attracted farmers already interested in environmental schemes, so results may not represent the full spectrum of farming opinion

Appendix B: Additional Farm Comments and Feedback

Agricultural Water Use

- Need to improve water availability for growing crops as a priority
- On-farm irrigation/ farm water supply is essential for future planning
- Volume of water available for irrigation is main point of interest
- Question why water cannot be used to irrigate grassland, as this would be beneficial to stock and land
- Unsure whether scale is very relevant to agricultural water use in River Colne catchment
- Need to consider rainfall as main water source for agriculture

Beavers and Other Re-wetting

- Suggestion that beavers are the best solution, and question whether their increased presence would render this project's efforts useless
- Other re-wetting opportunities suggested: Wet woodland
- Previous discussions were had about pumping water into woodland areas and allowing to infiltrate there
- Previously allowed water to flow back from river into ditch to prevent it trying out and causing issues for wildlife and fish

Biodiversity

- Some farmers are interested in ponds for their biodiversity and landscape benefits
- Question whether there could be a payment to leave the water in the pond for biodiversity – reference to pond BNG required in vicinity

Contracts

- Note that other stewardship schemes need to finish before entering any new scheme
- Concerns about contract lengths due to other infrastructure proposals in the area
- Would water company demand a compulsory reduction of mains water usage if signing up to WNG?
- When selling the land, the new owner would receive the liabilities, but few of the upfront benefits of WNG.
- Suggestion that the scheme should provide a package solution with little effort to the farmer – key for successful uptake
- What would be renewal options beyond contract end?

- Loss of control/constraints over future use of land reducing options if land is re-designated.
- Would there be insurance if the water was not available due to pond failures?
- Would prefer pond construction themselves

Costs/ Funding/ Finance/ Farm Business

- Note that cost of electricity is high, therefore pumping costs are high
- Government policies have changed, and therefore capital investment is not possible for a farm (100% funding is required for supply ponds)
- Level of investment is high and unlikely to be achieved for predominantly tenanted farm
- Uncertainties over continuation of the farm business due to government
- Maintenance funding would need to be inflation/ cost index linked
- Borehole costs can be quite high (half of mains water cost), if maintenance is expensive due to iron clogging up the system
- A total annual income of ~£4000-5000 plus support with installation costs would be required (for supply ponds)
- Requirement for fair return on investment for a farm business
- Interest to hear more about project investment returns and market development
- Value of water to a water company when releasing into a watercourse at times of drought?
- Would the payment be paid annually whether or not the water is released — guaranteed income also in wet years?
- Would there be a financial cover to return the pond back into agricultural production at the end of a contracted period?
- How would pond creation be paid for?
- How would the benefit of pond creation be measured?
- Who is going to fund this and how?
- Storing water on the farm can future-proof the business
- There is little incentive for farm investment if farmer has a free/ cheap water supply already
- Would there be implications for farm value, or inheritance tax?
- Engineering design is a major cost barrier to entry
- Not sure any of this has been well thought through and most land agents would suggest SFI options or private funding for BNG

Design

- Ideas need to be practical and work naturally

- There is too much water runoff in winter, storing water longer would be good
- Scheme needs to be done at a greater scale
- “Greater on-farm storage at high flow” (suggested interpretation: There would be scope for more volume if high flow river abstraction would be acceptable for WNG ponds)
- Experience from RWH installation: There are hidden costs such as preparing bases, excavating and connecting pipes, electric supply, which are not considered/ there is no grant for.
- The pond should be integrated with Rainwater harvesting — first use RWH tanks, and then let them fill up from pond / overflow of rainwater into pond.
- Suggestion to use treatment wetlands with e.g. willows to improve water quality prior to water storage
- Lack of suitable sites

Flooding

- General concern about flooding, and difficulty to understand why holding water back would be beneficial – would locally raise water table/increase flooding. Real issue is perceived as: Getting water drained away during wet periods more effectively
- Desire to have land well-drained and tidy
- Interest in joint ventures to create water storage capacity and potentially reduce flooding to local communities

Infrastructure

- Infrastructure costs can be high (pipes, pumps, filters, works, etc.)
- What would happen to infrastructure after contract end?
- Location of road and utilities infrastructure can impact pond creation
- Historic waste site – potentially challenging for pond creation

Interest in WNG/ Pond Creation/ Restoration

- Interest in pond creation schemes
- Interest in restoring existing pond
- Several farmers / landowners re-iterate interest to participate in WNG
- Certain landowners highlight that they would participate to supplement river flows

Advice Requests

Advice was requested for:

- NFM

- Specific pond restoration
- Design for ponds

Multiple Benefits

- Recognition that multiple benefits would be ideal
- Suggestion of additional hydropower
- Suggestion that beavers provide a broader range of outcomes than a constructed pond

Planning Permission

- Statement that it is absurd that planning permission is required to build a pond, but not to fill a pond in
- General interest in planning process, and question whether BNG requirements would be incurred by the pond construction
- Joint planning applications with local group/ farm cluster would be a strong incentive

Rainwater Harvesting (RWH)

- RWH is easier, and makes most sense as a first step
- Grant funding for RWH required
- Pond and RWH should be integrated – first use RWH tanks, and let them fill up from pond / let the rainwater overflow from tank into pond

Reservoir

- A farmer offering to sell water, as they already have a reservoir (considering adequate income)
- A farmer suggesting selling water, but reservoir did not receive funding and therefore has not been implemented – question whether WNG could help, and would like to discuss proposal
- A farm would consider refurbishing their existing reservoir for this
- Suggestion that WNG could be another dimension of existing LRO plans for new reservoir and water re-use scheme – integrating more ponds into the piped network already planned. Ideal option would be reservoir scale for combined on-farm use and Environmental Destination supply (ie large enough to do both).
- Payments to supply reservoir water may only cover the cost of filling the reservoir
- Requirement for further reservoir storage

Stakeholders

Several stakeholders were mentioned:

- The chair of a Water Abstractor Group participated in the survey

- Experience of working with a water company: No joined up thinking, lots of admin, the water company should invest properly in nature-based solutions, as they are still a fraction of what is being spent on all the infrastructure
- Interest in a joint venture to create water storage capacity and reduce flooding – Also reference to LROs
- Internal Drainage Boards: Need more funding for ditch maintenance. The River Idle in this area like the River Thorne is a constructed river, almost like a canal, and water is pumped into it rather than finding its own way. At the confluence to the Trent it is gated and the lack of desalting by the IDB means that the gates to the Trent can no longer be opened and therefore water needs pumping over to get it into the Trent and onwards.
- Reference to the Environment Agency to manage rivers better with regard to de-silting and tree removal
- Suggestion to ask farmers for their ideas, as they run the farms
- Different types of people would not be up for something like this.
- Is it easier to create ponds without getting involved in a large scheme, with company bureaucracies?

Tenancy

- Being a tenant, everything would need consent from the landlord.
- Tenancy timeframes need to be considered when agreeing to a contract.
- The level of investment required for a predominantly tenanted farm means that any projects would be unlikely.