

Tree Planting for Climate Change: Coverage in the UK Farming Sector Press

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1 Tree Planting for Climate Change: Coverage in the UK Farming Sector Press

2 ABSTRACT

3 In recent years tree planting as a response to climate change has acquired a very high profile 4 amongst policy-makers, scientists, the media, and the public. This 'afforestation', however, requires 5 space: that is, land. Agriculture currently occupies very large areas of land globally meaning that it is 6 commonly targeted as needing to make way for tree planting, and making farmers important 7 gatekeepers to this climate change mitigation strategy. Given the importance of farming sector 8 media outlets in reflecting, shaping and leading values and attitudes amongst the agricultural 9 community, this paper investigates how tree planting is presented within the UK's two leading 10 sectoral publications, Farmers Guardian and Farmers Weekly. We sample coverage at four points 11 over a two-year period (2019-2021) which began with high-profile national media and scientific engagement with the topic. Our analysis reveals very low levels of coverage within these key 12 13 publications with, on average, just 1 in 200 articles within our sample focusing on tree planting. 14 Within this limited coverage we identify four themes which range from hostility towards the notion 15 of trees on farms replacing agricultural practices, through to occasional recognition of the positive roles that trees on farms can play in climate change mitigation. Arguably, the lack of legitimisation 16 17 within the coverage constitutes a significant barrier to woodland expansion on agricultural land. We 18 conclude that farming media outlets could play a much stronger role in supporting the agricultural 19 community to understand how it could contribute to climate change mitigation through bringing 20 trees 'in' to farming systems, and to the normalisation of this within modern farming culture.

21 KEYWORDS

22 Tree planting; Farming; Sectoral media; Climate change mitigation; Thematic analysis.

23 1. INTRODUCTION

24 Advocacy for tree planting and 'woodland creation' in response to climate change has reached fever pitch in the UK and beyond – in many ways becoming the raison d'être of contemporary forest 25 26 policy. The Intergovernmental Panel on Climate Change (IPCC) published their special report on 27 'Climate Change and Land' in August 2019 (Shukla et al., 2019), which stressed the importance of 28 afforestation for its potential to deliver high impact on climate change mitigation. Echoing this at the 29 national level, the UK Climate Change Committee (CCC) 'Net Zero' report (CCC, 2019). was published 30 in May 2019, recommending planting 30,000 to 50,000 hectares (ha) of trees annually to meet commitments made under the Paris Agreement. These reports gained significant attention in 31 32 national media highlighting the need for afforestation and emphasising the need for changing diets

and moves away from livestock agriculture (Cauer, 2019; Harrabin, 2019; Schiermeier, 2019).

Numerous other articles have appeared across national, regional, and local popular press related to tree planting for climate change mitigation or reporting contemporary ecological and forest sciences in this subject area (BBC, 2017; Carrington, 2018; Flynn Mongensen, 2019).

In one particularly high-profile instance, July 2019 saw several media outlets reporting the
publication of '*The global tree restoration potential*', a paper by a group of environmental scientists
led by Jean-Francois Bastin, in the journal *Science* (Bastin *et al.*, 2019)¹. National media headlines
associated with this publication highlighted the 'mind blowing potential' of forest restoration to
remove green-house gasses (GHG) from the atmosphere (Carrington, 2019; see also Demarco, 2019;
McGrath, 2019). Related posts on social news websites became among the year's most 'upvoted'
posts within days (Mvea, 2019).

This narrative, drawing together a verifiable climate change mitigation technique with the widely popular act of tree planting, has proved extremely popular amongst political leaders. During the UK's 2019 General Election, for example, political parties sought to outdo each other with manifesto commitments to ever larger tree planting promises (BBC, 2019). Tree planting targets themselves have had impactful media coverage (England and Wainwright, 2019; Weston, 2019), and form a significant element of governmental policy (DEFRA, 2020; Scottish Government 2019; Welsh Government 2018).

51 A critical dimension of the afforestation agenda is finding the space – land – to plant trees. It is 52 widely felt that much of the proposed afforestation across the UK will need to be undertaken on 53 land currently used for agricultural production. 'Marginal' upland areas typically used for extensive 54 livestock production are often highlighted as key opportunity spaces. As a climate change mitigation 55 strategy, large-scale tree planting is often deemed to compete for land with agricultural production 56 and is frequently considered to run counter to the cultural attachment of farmers and farming to the 57 land (Eves et al., 2013). Land availability and the related socio-cultural context, attitudes, and goals 58 of the farming community are therefore central constraints here. There has been much analysis in 59 this arena with explanations of poor engagement with woodland creation and management 60 amongst the farming sector centring on the roles of economics, knowledge, cultural norms and 61 practices, governance design and advisory services (Dandy, 2016, Hardaker, 2018, Hardaker et al., 62 2021; Wynne-Jones, 2013). These constraints are reflected in the very low rates of afforestation in 63 the UK in recent years (Forest Research, 2020).

¹ This paper subsequently became the target of considerable scientific scrutiny, critique, and debate (e.g., see 'Letters' and 'Response to Comments' in *Science*, Vol.366, Issue 6463 (18th October 2019) and resulted in the publication of an 'Erratum' (Bastin *et al.* 2020).

64 In western societies the media wields considerable power in disseminating ideas and defining 65 what is considered normal, or 'popular common sense' (O'Shaughnessy and Stadler, 2016) in 66 relation to specific issues. Mass media actors and society interact in complex dialogues, co-67 producing public understanding and set political agendas, including in relation to sustainability and 68 land management challenges (e.g. Achong and Dodds, 2019; Soroka, 2002). Within this, diverse 69 media outlets interact in different ways (and at different scales) with their target audiences. 70 Sectoral, local, and other membership-oriented media have a distinct role in reflecting, defining, and 71 evolving or maintaining particular sets of understandings and values within relevant social groups 72 (e.g. Granner et al., 2010). Whilst the media is not generally the immediate or direct motivation for 73 farm-level 'decision making' (see Rust et al., 2021), coverage of issues affecting the agricultural 74 sector shapes farmer behaviour and decisions by representing issues in particular ways, expressing 75 (explicitly or implicitly) certain values, including or excluding topics, and outlining risks and 76 opportunities for change (Wanta, 2004; Ehlers and Sutherland, 2016). Thus, the farming media 77 actively 'frames' (Entman 1993; Lockie 2006) agricultural practice by purposively including, 78 emphasising, and promoting particular aspects of farming business and life, whilst omitting others. 79 Given the context of an increasingly frantic drive for afforestation and the importance of 80 attitudes towards trees amongst the farming community, in this paper we examine how tree planting, or 'woodland creation', is featured within and represented by the UK's farming print 81 82 media. Whilst digital media and sources of information are increasingly prominent within the 83 agricultural sector, print media sources - especially dedicated 'trade' outlets - remain important 84 sources and communication channels (Chapman et al., 2009; Corner-Thomas et al., 2017; Rust et al., 85 2021). Hence, the framing and communication of woodland planting and its relation to climate 86 change mitigation within these outlets is highly likely to both reflect and shape farmer culture, 87 preferences, and goals in relation to this issue.

88 A number of agricultural and other land management debates have been examined through the 89 'lens' of print media analysis – including with a focus on sector-specific press. Rust et al. (2021), for 90 example, analysed the framing of sustainable agricultural practices in the UK farming press to 91 understand if this influenced farmers to adopt these practices. This analysis found sustainable 92 farming practices were most frequently framed from an economic or agronomic perspective which 93 farmers identified as common drivers of adoption. However, the study also highlighted the limited 94 trust placed in the farming press by some farmers, who believed that, due to the need for continued 95 advertising revenues, reporting tended to favour agribusiness. The inclination to align publications with the values and needs of agribusiness and present new product information as reportage, it 96 97 suggests, reduced trust and supported the maintenance of the status quo in agricultural practice.

98 Morris et al. (2016) compared the framing of antibiotic use in animal agriculture within national and 99 sectoral publications in the UK. This highlighted the emphasis placed on implications for human 100 health across outlets. It also, however, identified a distinct framing of the issue within the farming press which itself highlights the perceived importance of the media within the sector. This framing 101 102 centred on the strength of public scrutiny and the consequent need for 'informed and responsible' 103 decisions that successfully maintain consumer confidence. In her analysis of environmental 104 discourses within German farming media, McHenry (1996) showed that environmental problems 105 were commonly played down when established farming practices were 'blamed' for, or implicated 106 in, them. However, pro-environmental discourses were utilised when they 'served the interest of 107 farmers' (p. 384). She also described how internally diverse (and sometimes contradictory) elements 108 of the farming sector press can be.

109 Media analysis is less common in relation to trees and the forestry sector, however, Takala et al 110 (2019) used media print analysis across scales – regional newspapers and sectoral magazines – to 111 identify four primary discourses within the representation of Finnish forestry. A 'wood production' 112 discourse has remained a dominant force in the sector despite the growth of alternative discourses 113 emphasising a broader, multifunctional understanding of forestry: demonstrating how well-114 established framings can persist in sectoral media. Media coverage of urban forestry has also 115 received some attention from researchers (e.g., Silvera Seamans, 2013). Conway and Jalali (2017) 116 describe how urban trees have been framed within local media by their provision of aesthetic 117 benefits and role in ecological restoration, along with their connections to and values for specific 118 communities. These positive frames were countered, however, following a storm event after which 119 the damage they caused and the cost of clearing up debris dominated their framing.

In this paper our analysis explores how tree planting, especially for climate change mitigation
and adaptation, is covered by the farming print media, with reference to wider media interest in
scientific research on the issue.

123 **2. METHODS**

124 **2.1 Publication choice**

We used two publications for our examination of the coverage of tree planting, or 'woodland creation', within the UK's farming print media: *Farmers Guardian* and *Farmers Weekly*. These magazines are published weekly and sold nationally across the UK. Both are aimed at the farming industry across the entirety of the UK and provide coverage of topical news and industry insight for both the livestock and arable sectors. Both these publications have broad readership; between January to December 2019 *Farmers Guardian* had an average circulation per issue of 28,149 copies and *Farmers Weekly* has an average circulation per issue of 41,533 (Audit Bureau of Circulation, 2020a, 2020b). *Farmers Weekly* estimate that on average 3 people read each printed copy, meaning
their readership is potentially >120,000. There are other sector specific publications such as *Dairy Farmer* or *Arable Farming* and publications aimed at some of the devolved nations of the UK such as *The Scottish Farmer* or *Wales Farmers*. However, these are not published on the same weekly basis
as *Farmers Guardian* and *Farmers Weekly*.

137

138 **2.2 Sampling approach**

139 Farmers Guardian and Farmers Weekly are not available as digitised versions in the Nexis News 140 database; hence our samples are based on paper copies of the two publications across four sample 141 period. We took two initial samples (S1 and S2) of issues of both Farmers Guardian and Farmers 142 Weekly, each spanning a three-month period encompassing high-level policy and academic activity surrounding tree planting and climate change. The first sample covered a period starting a month 143 144 prior to the publication of the UK CCC 'Net Zero' report (April 2019) (CCC, 2019) and ending in the month prior to the publication of the Bastin et al. paper (June 2019). The second sample extended 145 146 over a period beginning with the publication month of the Bastin et al. paper (July 2019) and running 147 to the month following the IPCC report on 'Climate Change and Land' (September 2019) (Shukla et al., 2019). This second sample period also encompassed publication of the National Farmers Union 148 149 'Achieving Net zero' report (September 2019) (NFU, 2019), which also placed significant emphasis on 150 farm carbon storage through tree planting. We took these two initial samples to look in depth at 151 media coverage of tree planting and to track short-term change during this period of intense and high impact international and national debate on climate change and tree planting. 152 153 To track longer term changes in coverage we took two further samples, one year (April to June

154 2020; S3) and two years (April to June 2021; S4) after our first sample (S1). Resource constraints 155 meant that we could not access paper copies of Farmers Guardian for the 2020 and 2021 sample periods (S3 and S4). For these two further samples we only included *Farmers Weekly*, the most 156 157 widely distributed and read publication, but we are confident that the four sample periods covered by Farmers Weekly allowed us to consider how the narrative surrounding tree planting changed over 158 159 time. In total, our analysis encompassed 74 issues of these two publications. Table 1 outlines the 160 number of issues in each of the four samples and provides some descriptive statistics related to 161 article counts in each. We included all non-advertising content within our analysis including feature articles, letters, opinion pieces, editorial, and news items - all of which herein we refer to as 162 163 'articles'.

Table 1: Comparison of tree planting and woodland creation related articles to total number of articles in Farmers Guardian *and* Farmers Weekly *across the sample periods.*

Sample period	Year	Months	Publication	Number of issues	Average number of articles per issue
S1	2019	April to June	Farmers Guardian	12	75 ± 5
			Farmers Weekly	12	69 ± 6
S2	2019	July to September	Farmers Guardian	13	77 ± 4
			Farmers Weekly	12	74 ± 5
S3	2020	April to June	Farmers Weekly	12	71 ± 6
S4	2021	April to June	Farmers Weekly	13	63 ± 5

164 2.3 Data Analysis

We (the three co-authors) read each issue in our four samples and identified every article where tree planting or woodland creation was the subject of ('full focus'), formed part of, or was mentioned in the article text. We each cross checked a proportion of the issues read through by the other researchers to ensure nothing was missed or included incorrectly. We created an archive of digital scans and photographs of the articles for further analysis.

Supplementary material Tables 1 to 4 contains a summary of each of the articles included in the analysis presented in this paper. We used a referencing system where the articles are referred to in the following manner 'SAMPLE YEAR/PUBLICATION/ARTICLE NUMBER' to cross reference article summaries in the supplementary material to the manuscript text. For example, '2019 FW 1' refers to article one from *Farmers Weekly* in the 2019 sample and '2019 FG 3' refers to article three from *Farmers Guardian* in the 2019 sample.

176 Once we had collated our sample news items, we undertook a thematic analysis. This entailed manual inductive coding of the texts (Maxwell, 2005; Thomas, 2006) to interpret their meanings and 177 178 subsequently develop broad understandings of the coverage relating to tree planting and woodland 179 creation - e.g., recurrent issues, perspectives, and messages - as common themes. Each article was 180 analysed as an individual unit. Two co-authors took the lead on initial coding of the themes. In an 181 effort to deepen our analysis and develop consensus amongst the researchers regarding our 182 individual interpretations of the data we sought subsequently to verify our codes through re-reading 183 and co-analysis of a proportion of articles. This included several analytically focused discussion meetings between all co-authors wherein the content and focus of each theme was checked and 184 185 iterated.

186 **3. RESULTS**

187 **3.1 Extent of coverage**

- 188 The coverage of tree planting and woodland creation related articles² in *Farmers Guardian* and
- 189 Farmers Weekly over the first two sample periods (S1 and S2) are shown in Table 2. In both
- 190 publications, these articles amount to a very small proportion of the total number of articles
- 191 published. In our 2019 samples tree related articles made up just 0.66 and 1.5 % of the total number
- 192 of articles published in *Farmers Guardian*. The coverage of tree planting and woodland creation
- related articles in *Farmers Weekly* during S1 and S2 was marginally higher at 1.8 and 1.9 % of the
- 194 total.

Table 2: Comparison of tree planting and woodland creation related articles to total number of articles in Farmers Guardian and Farmers Weekly across the two 2019 sample periods.

Sample Publication		Number of articles	Number of tree planting related articles	Relative coverage of tree planting related articles (% of total number of articles)
S1	Farmers Guardian	899	6	0.66
	Farmers Weekly	830	15	1.8
S2	Farmers Guardian	1007	16	1.5
	Farmers Weekly	888	17	1.9

195The coverage of tree planting and woodland creation in *Farmers Weekly* in the 2020 and 2021196samples (S3 and S4) is shown in Table 3. The coverage dropped notably in S3 to less than 1 % of all197articles published, a level lower than in S1 and S2. S4 coverage of tree related issues in *Farmers*198*Weekly* returned to a similar level of coverage as in S1 and S2 of 1.8 %. Overall, from a total of199>5,000 magazine articles (features; letters; opinion pieces) only 77 (around 1.5 %) mentioned tree200planting. Of these, only 26 (just less than 0.5 %) could be considered as 'fully focused' on the subject.

Table 3: Comparison of tree planting and woodland creation related articles to total number of articles in Farmers Weekly across the 2020 and 2021 sample periods.

Sample	Number of articles	Number of tree planting related articles in <i>Farmers</i> <i>Weekly</i>	Relative coverage of tree planting related articles (% of total number of articles)
S3	848	8	0.94
S4	820	15	1.8

² Herein, 'article' refers to any distinct or individual textual entry within the sample publications and includes feature articles, letters, opinion pieces, interviews, and news items.

201 The breakdown of the coverage between articles with a 'full focus' on tree planting and 202 woodland creation and articles which only mention tree planting and woodland creation over the four sample periods is shown in Figure 1. S1 included no articles that focussed on tree related issues 203 204 in Farmers Guardian (Figure 1). During this time, while Farmers Weekly did include several articles 205 focussing on tree planting and woodland creation, there were significantly more articles where trees 206 were mentioned in passing. In S2 there was an increase in articles both focussing on and mentioning tree planting in Farmers Guardian. Whereas, in Farmers Weekly there was an increase in the number 207 208 of articles focussing on tree planting, while the number of articles only mentioning trees declined.



Full focus on tree planting and woodland creation Mentions tree planting and woodland creation

Figure 1: Number of tree planting and woodland creations related articles in Farmers Guardian and b) Farmers Weekly and split between articles that have a full focus on tree planting and woodland creation or only mention tree planting and woodland creation. S1 and S2 included both Farmers Guardian and Farmers Weekly, whereas sample three and four included Farmers Weekly only.

- 209 In S3, which included only *Farmers Weekly*, the number of articles both mentioning and
- focussing on tree planting fell to its lowest level across all four sample periods (Figure 1). The
- number of articles focussing on and mentioning trees in *Farmers Weekly* during S4 was back to a
- similar level of coverage as in 2019. Whilst the total number of articles focussed wholly on tree
- 213 planting remained very small across our four samples, the number was notably higher in S2.

214 3.2 Themes

- 215 We identified four main themes running through the coverage of tree planting and woodland
- 216 creation in Farmers Guardian and Farmers Weekly. These themes cover a spectrum from
- 217 oppositional reporting pushing back against the 'replacement agenda' and financial issues to more
- 218 positive coverage of the benefits of trees as part of the farming unit and, critically, the role of trees

- on farms in the fight against climate change. The following explores each of these themes in more
- 220 detail and how their coverage changes through the four sample periods.

221 3.2.1 The 'Replacement' agenda

222 A notable theme across our samples frames tree planting as in direct competition with farming and 223 food production. Articles – particularly letters and opinion pieces - criticise tree planting on account 224 of its likely implications for the displacement or 'replacement' of existing agriculture from 225 substantial areas of land in the UK. This perceived 'replacement' agenda is particularly countered 226 rhetorically via reference to both food security and the potential export of carbon emissions 227 overseas. In S1, an article responding to the 2019 CCC report, for example, directly highlighted the 228 potential shift in land use by stating the report asserted that "One-fifth of UK farmland should be 229 shifted into tree planting, energy crops and peatland restoration" (2019 FW 3). In reply, a farming 230 union representative noted:

231 "We will not halt climate change by curbing British production and exporting it to countries that
232 may not have the same environmental conscience, or ambition, to reduce their climate impact."
233 (2019 FW 3)

One article, within S2, illustrates this theme very clearly. Entitled '*Fury at climate plea to turn* uplands to forest', the news item covers farming sector responses to a suggestion made within a Parliamentary meeting that:

"... particularly in Scotland, in the uplands, part of the least good land in terms of pasture may
have to be given over to afforestation and peatland because of its [carbon] storage potential, but
another half of it must stay." (2019 FG 7)

240 This clear 'replacement' statement was met with accusations that it "completely" neglected "the 241 financial needs of hill farms and the rural communities surrounding them" (2019 FG 7), along with 242 reminders of past conflict and consequences of upland afforestation in Wales. Within this article, 243 however, the potentially positive contribution that agroforestry could make to production and 244 sustainability was also suggested (see Theme three). Food production and security continued to 245 feature heavily within subsequent articles covering climate change, although with a significant shift 246 in emphasis. With publication of the IPCC's report in particular the debate focused not primarily on 247 giving land over to tree planting but a more general criticism of the IPCC's perceived "anti-meat agenda" (2019 FG 13). One letter to the Farmers Guardian at this time singled out the CCC and 248 249 several other environmentally focused organisations as constituting the "let's get rid of farming" 250 agenda (2019 FG 14).

251 Afforestation only features very occasionally within this debate with, for example, a sector 252 representative noting "It's not about reforesting vast tracts of our farmland or diminishing our meat 253 production. It's about being cleverer in how we manage these things." (2019 FW 32). Scepticism of 254 the international implications of increased tree cover in the UK also continues to receive coverage with, for example, a letter to Farmers Weekly stating "... according to [labour politician] Mr Gardiner, 255 256 we need to plant more trees and grow less food. That, in turn, means importing more foodstuffs into 257 the UK, therefore defeating the whole objective of reducing our carbon footprint." (2019 FW 20). 258 There is a notable absence of articles within this theme in S3, but within S4 the theme reemerges clearly. Articles repeat the arguments brought forward already: such as that large scale tree 259 260 planting "could rob Wales of productive farmland" (2021 FW 1), and "... while more forestry and

rewilding encourages wildlife, it does not feed the people" (2021 FW 4). Further articles note this loss
of food production may have detrimental effects overseas:

263 "... despite increasing tree cover inside their own borders in response to concerns over climate
264 change and habitat loss, the ecological footprint of the G7 nations abroad is growing ... cutting
265 down a tropical tree cannot be compensated by planting a pine tree" (2021 FW 7)

266 **3.2.2** From inadequate grants to carbon credits: financial aspects of tree planting on farms

267 Our analysis found repeated reporting on some of the financial aspects of tree planting, particularly 268 relating to grant assistance and some of the of the issues surrounding forestry as a financial asset class. In S1, several short news pieces report on some of the grant assistance available for 269 270 landowners to plant trees, such as some of the funding associated with the 'Northern Forest' 271 initiative (2019 FW 1). This reporting also claims that the administration of current grant schemes is 272 not fit for purpose with many farmers having to wait substantial amounts of time before payments 273 were made (2019 FW 14). One article notes that in many cases the payments are insufficient stating: "In England, grants including the Woodland Grant Scheme ... are substantial but the numbers do not 274 275 always stack up" (2019 FG 4). Reporting in S1 also highlighted that the potential returns from 276 forestry are significantly inflating the prices of farmland that is suitable for tree planting beyond the 277 reach of many farmers (2019 FG1 and 2019 FW 10).

During S2 the critique of existing grant assistance for tree planting is continued in short news and opinion pieces about the bureaucracy associated with applying for grant funding being a *"major barrier"* to farmers engaging with tree planting (2019 FW 23). Articles in S2 also note that public funding is currently not available for agroforestry (2019 FW 26) or more *"scruffy"* and *"untidy"* approaches such as rewilding and allowing trees to (re)colonise naturally are not supported by current grant schemes: 284 "The problem with these schemes is that everything has to tick the box. Field margins and hedges
285 are an exact width; a field is grass or woodland, not both" (2019 FW 30)

Two months following the publication of the Bastin *et al* article, one piece writes that the farming
sector should be a leader in climate change mitigation, as the Net Zero 2050 target will not be met
without their help. This piece featured opinion from the CLA president stating:

289 "This will require long-term government support supplemented by new environmental payments,
290 to ensure increasing planting of trees" (2019 FG 8)

In S3 the narrative shifts towards the opportunities for biodiversity offsetting and - for the first
 time - carbon credits to provide finance and income streams for woodland creation projects on
 farms (2020 FW 1 and 2020 FW 5). For example:

294 "There are lots of ways to improve biodiversity. If you were thinking of putting a site down to
295 trees or changing management practices ... you could receive payment from the developer for
296 this" (2020 FW 3).

297 Coverage of this theme in the S4 focusses on how revenue streams from alternative uses of land 298 for natural capital and biodiversity enhancement and generating carbon credits will compete with 299 agriculture; tree planting is identified as one of these alternative uses of land. Two feature articles 300 note these new revenue streams are likely to bolster demand for land and increase the value of 301 grassland suitable for planting and existing woodland (2021 FW 5 and 2021 FW 12). This reporting 302 picks up on a prevailing concern among the farming sector that once land is turned over to 303 woodland it is worth less than bare agricultural land but argues that this is likely to no longer be the 304 case. A further article reports that green buyers typically looking for farmland to plant trees and 305 generate carbon credits are no longer solely looking for marginal land in the uplands:

306 *"Interestingly, such buyers are starting to become active in lowland areas of England, as well as*307 *the uplands ... growth in environmental land investment is a trend we are also seeing in Scotland*308 *and Wales"* (2020 FW 2)

309 **3.2.3 Trees as an enhancement of the farming unit**

Our searches found varied reporting on the role of tree planting on agricultural land as a means of *enhancing* the farming unit alongside their role as a response to climate change. In the first sample, tree planting is touched on briefly in feature articles as being a means to enhance both the natural capital and sale values of farms. These pieces refer to the common rhetoric that trees planting is a great opportunity to put 'marginal' farmland to better use, for example, 315 "Rough, unproductive corners of land could be suited to trees, but, of course, it requires taking a

316 long-term view ... very few farms are not improved somehow by woodland planting – from

317 reducing soil erosion by cutting down wind and providing a potential source of diversification"

318 (2019 FG 3)

This frequently used argument is not furnished with examples of tree planting doing so and verymuch focusses on ways agricultural land can be given over to trees.

During S2 (post publication of the Bastin *et al* paper) the narrative shifts towards ways tree can be integrated into farming systems to improve agricultural production within the farming unit, and potentially creating collateral benefits for the environment in the process. The articles in S2 include a range of types (e.g., news, letters, features) commenting or reporting on how hedgerows and agroforestry can create *"sustainable farming systems"* (2019 FG 12). These pieces address climate change directly by noting the significant potential for agroforestry to contribute to climate change mitigation, for example,

328 "Agroforestry is something of the poor relation when it comes to increasing the country's tree
329 cover, but its potential contribution to offsetting climate change should not be underestimated"
330 (2019 FW 26)

This potential is elaborated on with examples of how agroforestry has been put into action in

existing farming units with one detailed case study of the integration of fruit trees into an organic

farm using a silvopastoral system. The farmer is quoted on aspects of how the trees interact with the

334 farming activity, for example,

335 "Since dividing up the pasture with trees, we have introduced a paddock grazing system for the

dairy followers and beef, moving the cattle to a different strip of grass every two days ... we let

337 the grass grown a bit longer which is good for biodiversity, but also benefits the rumen function

of the young cows, while building up carbon in the soil" (2019 FW 28)

These articles make a concerted effort to relate tree planting with core matters of farming interest (e.g., productivity, labour requirement, costs, and operating requirement). Some articles also go beyond improving agricultural production itself and make a more adventurous case for creating additional diversified income streams, for example by creating woodland burial grounds (2019 FG 21).

S3 contained little coverage related to this theme other than two short news items highlighting a
new tool that shows where tree planting may be beneficial (2020 FW 6) and calls from stakeholders
for greater focus on agroforestry in future farm support packages (2020 FW 8). However, in S4

- 347 several substantial feature articles explored the potential for commercial orchards as way to link
- tree planting and food production hand in hand (2021 FW 2 and 2021 FW 10).

349 **3.2.4** Farming, trees, and the fight against climate change

350 Our searches identified consistent, albeit very low profile, acknowledgement of the increased 351 integration of woodlands on UK farms as a valid response to climate change. Tree planting is noted 352 very briefly across different article formats (e.g., letters; opinion pieces; interviews) as being one of a 353 range of options available to farmers as the sector adapts to deliver 'net zero' as part of ongoing 354 'environmental' agriculture. These pieces often feature opinion from policy-leaders such as government ministers or sector representatives with afforestation generally characterised positively. 355 356 Within these pieces, tree planting is set out as a necessarily government incentive driven route to 357 climate adaptation through farm diversification, hence enabling farm business as usual. A small 358 number of articles within S1 carried this theme, for example,

359 *"Producing good quality food and at the same time delivering on net-zero carbon is going to be a*

360 particular challenge. But part of the way we can deliver that is through environmental land

- 361 management looking at carbon sinks, forestry and more sustainable methods of farming."
- 362 (Government Minister interview) (2019 FW4)
- 363 One article notes that perceived climate friendly nature of Welsh farming is undermined by

364 conflating its emissions together with worldwide statistics:

365 *"Our animals are mainly fed on natural grass and the Welsh agricultural industry uses rainwater*

366 and more renewable energy, but we are still lumped in with countries which are far less

- 367 environmentally friendly." (2019 FG 5)
- 368 Immediately following publication of the Bastin *et al* paper (during S2) although with no direct

369 reference to it - these messages of diversification remained, including explicitly in response to the

- 370 IPCC report. For example, one feature article mapped out the key IPCC report messages including:
- 371 *"Governments must prioritise farming systems that improve our environment, such as*
- agroecology, mixed farming using extensive grass-based systems and agroforestry, where
- 373 commercial crops are mixed with trees." (2019 FW24)
- 374 Sector representatives consistently advocate farm adaptation, for example noting:

375 "... the industry could reduce emissions by promoting sustainable farming practices and systems,

- 376 planting trees and better managing existing woodland ... this will require long-term government
- 377 support ..." (CLA) (2019 FG 8)

378 Two months after the Bastin paper's publication, some coverage within this theme was generated by 379 the publication of the National Farmers' Union's (NFU) *Achieving NET ZERO: Farming's 2040 Goal* 380 report. Within this the NFU clearly echo this diversification theme by identifying 'boosting carbon 381 storage', though increasing woodland, alongside improved production efficiency and increased

382 renewable energy use as three 'pillars' of the sector's contribution to climate change mitigation

383 (2019 FG 17). There are fewer items carrying this theme within our later sample periods (S3 & S4).

In one news item responding to policy development in Scotland, however, trees are identified as
'part of the solution' to climate change, albeit not such that farming should be affected
detrimentally by woodland expansion:

"A major emphasis in the [land use] strategy is on woodland expansion and peatland restoration
as central planks in tackling climate change ... While part of the solution, these must not result in
more efficient and sustainable agriculture being marginalised, undermining economic activity in
rural areas" (2021 FW3)

Indeed, much of this type of coverage engages closely with our first theme: that agriculture shouldnot be replaced to address climate change.

393 **4. DISCUSSION**

394 Our exploration of the coverage of tree planting, or 'woodland creation', within the UK's farming 395 print media found that such topics occupy only an extremely small proportion of the pages of two 396 key publications. Across our four samples less than 2% of articles focussed, or even commented, on 397 tree planting (Table 2 and 3). Where these subjects *are* covered, most articles only mention the topic 398 in passing (Figure 1). While we might not expect tree planting to feature to an equal extent in the farming press as other core agricultural matters (such as livestock management or crop protection), 399 400 it does receive an extremely low amount of coverage. If we accept that media outlets and elements 401 of society co-produce accepted group norms, values, and practices, this suggests that tree planting 402 and woodland creation are simply not considered as a currently significant or legitimate element of 403 farming culture and practice. Given that farmers are not only responsible for the management of 404 extensive existing woodlands, but also their aforementioned position as managers of the vast 405 majority of land that could potentially be afforested, this can be seen as a significant problem. 406 Within our sample, coverage, including pieces that focused fully on tree planting, was greatest 407 (albeit still very small) during the period which saw substantial relevant policy and research activity – 408 that is S2. One alternative, less problematic, potential explanation for the virtual absence of 409 coverage during S3 might be the prominence of the covid-19 pandemic at that time. April to June 410 2020 was a period of widespread restrictions and heightened concern about the disease which

provided important content for media outlets across all professional sectors and at local and 411 412 national scales. However, as coverage of all traditionally core dimensions of farming continued 413 throughout the pandemic, it appears more likely that trees – let alone tree planting as a pathway to 414 climate change mitigation – have not yet made their way onto the agenda of the farming sector. It 415 seems unquestionable that greater coverage of trees, tree planting and 'woodland creation' is 416 needed in the farming sector press if any substantive change in land use is to become evident. 417 Much like the analysis of McHenry (1996), we found quite internally diverse coverage. The 418 farming sector press in the UK over 2019, 2020 and 2021 presented two sets of relatively polarised 419 perspectives and associated messages on tree planting and woodland creation. A generally negative 420 perspective is constructed around the view that climate change will not be solved by replacing 421 agriculture with trees, that the real asset status of forestry (and possibly carbon trading) is inflating 422 already high agricultural land values out of reach of many farming businesses, and that government 423 incentives for tree planting are not fit for purpose and do not address the poor economic potential 424 that trees and woodlands offer. Much of this negative coverage takes the form of opinion pieces or 425 letters. A more positive perspective is predicated around two themes. First, that there are 426 opportunities for trees to enhance the farming unit and the agri-environment, and second, rare 427 acknowledgements that woodland creation on farmland can intrinsically be a positive step towards 428 combatting climate change.

429 **4.1** The interaction of policy, research and the farming press

Our initial two samples of articles in *Farmers Weekly* and *Farmers Guardian* were taken during a
period coinciding with the publication of a number of high-level policy and science outputs (Figure 2)
and thus intense and widespread debate of the role of tree planting in fighting climate change.
These received significant attention in the UK's national media but generated relatively little
attention within the farming press itself.

The UK CCC Net Zero report published in May 2019 discussed the role of woodland creation on UK agricultural land in decarbonising the economy, among several other climate change mitigation and adaption measures. This tree planting message was widely picked up in the national media (Gosden, 2019; England and Wainwright, 2019). However, reflecting once again perceptions within the sector regarding the core elements of farming, coverage of this report in the farming press focussed mainly on the messages surrounding reducing livestock numbers and meat consumption rather than the role of tree planting on agricultural land.

The Bastin *et al.* paper published in July 2019 took a global view of tree planting for climate
change mitigation, arguing that large swathes of agricultural (primarily grazing) land across the world
was suitable for tree planting. The UK national media again widely picked up on this message

445 (Carrington, 2019b; McGrath, 2019; Flynn Mongensen, 2019; Maslin and Lewis, 2019) but few made 446 links to implications for UK agriculture. In particular, how this woodland expansion may be achieved 447 (globally or in the UK) was more or less ignored by the national media coverage. Given the potential 448 implications of the finding of the Bastin et al. paper for UK agriculture, it is perhaps surprising that 449 there was no direct coverage of it in the farming press at the time. The national media also 450 published a range of critical responses to the Bastin et al. paper immediately after the initial public 451 attention; much of that echoed some of the themes identified in our analysis. Trees can only work as 452 a "most effective solution" for climate change if they are not misused as an offset for continued 453 emissions elsewhere (e.g., McGrath, 2019; Branford et al., 2019); an argument that is very similar to 454 the worries of farmers getting disproportionately saddled with outsourced emission reductions from 455 other sectors of the economy. There was, however, a secondary wave of criticism which went without coverage by either national media or farming press. A range of scientific comments were 456 457 published months after the original paper, primarily arguing that the calculation methods used by 458 Bastin et al. were incorrect and significantly overstated the potential of carbon sequestration via 459 tree planting (Skidmore et al., 2019; Friedlingstein et al., 2019; Lewis et al., 2019). As a result, the 460 authors issued an erratum in 2020, clarifying and changing some of the original statements (Bastin et 461 al., 2020). Neither popular nor sectoral media reported this.

The IPCC *Climate Change and Land* report published in August 2019 placed great emphasis on reducing emissions from food production e.g., through reductions in livestock numbers and moves to plant-based diets. The national media again picked up on this message (Carrington, 2019a) with tree planting only noted as a further mitigation measure. As with the UK CCC report a few months earlier, this was reflected in several articles in the farming press where the anti-meat agenda formed the main topic of the article, and planting trees was only mentioned in passing.

468 The NFU, a central institution within the farming sector with considerable media presence, 469 published their Achieving Net Zero report at the start of September 2019, outlining how the UK 470 farming sector intends to reach net zero by 2040. Increasing farm tree cover (woodland and 471 hedgerows) is, together with enhancing soil carbon storage, seen as the main pillar to boost carbon 472 sequestration on farms. The national media, focused primarily on the claim in the report that this 473 does not need to come at a cost to beef production (Carrington, 2019; George, 2019). The coverage 474 of the NFU report by the farming press speaks positively about the "unique position" of the UK's farming sector to become a role model in producing "the most climate friendly meat in the world". 475 476 The principal messages from these high-level policy documents that were interpreted and 477 reported in the farming press were perceived, or framed, as 'attacks' on agriculture. The coverage of

these reports related principally to theme one (the 'replacement' agenda), with much of the

479 coverage reactionary in nature, critically overlooking some of the other recommendations of these 480 reports, such as the potential for agroforestry to assist with decarbonising farming and the wider 481 economy. Much of the coverage of these reports doesn't examine how the agricultural sector in the 482 UK might address some of their findings. Only the NFU Net Zero report was presented positively by 483 the farming press, highlighting the complementarities between tree planting and implementation of 484 other efficiency measures on farms. This perhaps demonstrates the strength of established interests 485 within the farming media. Much like the findings of McHenry (1996), our analysis suggests the 486 farming press play down or exclude the messages of these major reports when the farming sector is 487 criticised and promote positive messages that maintain the existing position, structure and values of 488 the sector.

489 Overall, the UK's farming press successfully continued to steer a steady course for the sector 490 through the 'storm' created around it by major policy works and scientific analyses. Whilst there is 491 significant value for the sector in achieving this feat, arguably the sector's media has a much more 492 significant and constructive role to play.

493 **4.2 What's not being talked about?**

494 Farming sector publications give the readers detailed coverage of selected industry and business 495 insights, latest technological developments, market trends and specialist enterprise advice. As noted 496 above a key role of this media is the reflection, maintenance of and engagement with particular 497 values, practices and topics perceived as core to farming. However, farming sector publications 498 arguably have a broader role in agenda setting and modifying the narrative surrounding topical 499 issues that affect the sector, including climate change, tree planting and woodland creation. 500 Substantive coverage of novel topics such as these within key, trusted publications would provide 501 farmers with important opportunities to make sense of them and interpret their meanings and 502 implications relative to established core concerns. Based on our analysis we would argue there are 503 at least two key elements missing from the coverage of tree planting and woodland creation on 504 farmland that ought to be firmly within the scope of the farming sector and its media outlets. First, 505 coverage should extend to the implications of how the agricultural sector may contribute to 506 achieving high level 'strategy' for tree planting and woodland creation to resolve climate change – a 507 collective environmental challenge. Second, it should explore how trees can be (re)incorporated to 508 benefit productive farming systems in considerably more depth.

509 **4.2.1** How can the agricultural sector deliver high-level aspiration for increases in tree cover?

510 While we might not expect that the key messages of the high-level policy documents and the Bastin

511 et al paper to be repeated verbatim within the farming sector press, there is very little coverage (if

512 any) relating to the implications of this high-level momentum surrounding significant afforestation 513 for the farming sector in the UK, nor how the farming sector may contribute to it. The momentum 514 for tree planting and woodland creation to decarbonise society will require significant change in rural farmed landscapes (Burke et al., 2021). The perceived negative view of farmers towards tree 515 516 planting and woodland creation is understood to be more towards past experiences of the way 517 woodland creation occurred within farming landscapes, not tree planting per se (Iversen, 2019). The 518 farming sector press informs the identity and desires of their readership and arguably, therefore, has 519 a role to play in supporting cultural change towards embracing tree planting strategies within farm 520 systems as one element of the climate change mitigation agenda (Chapman et al., 2009; Corner-521 Thomas et al., 2017).

522 Recent research suggests, however, that the trustworthiness of messaging from the farming 523 press is increasingly questioned by farmers (Rust et al., 2021). While peer-to-peer learning is a key 524 element of knowledge exchange for farmers, the farming press (including Farmers Guardian and 525 Farmers Weekly) still play an important role in change (Rust et al., 2021). However, much of the 526 coverage of high-level policy surrounding tree planting and climate change form reactionary opinion 527 and editorial pieces, reinforcing negative attitudes to planting trees on agricultural land. We would 528 argue that coverage of these issues in important publications such as Farmers Weekly and Farmers 529 Guardian is currently missing constructive examination of how they can be navigated and engaged 530 with by the agricultural sector to feed into peer-to-peer learning, discussion and cultural change.

531 **4.2.2** Re-normalising trees as part of a productive farming system

532 Numerous articles in the farming press focus in detail on how different livestock housing 533 arrangements, machinery or production techniques contribute to the productivity of the farming 534 business. Tree planting currently does not get depicted nor explored in the same way or to the same 535 depth. In many of the articles where tree planting, woodland creation and associated topics are the 536 full focus of the article, it is often presented as somewhat 'maverick' - that is, outside of the norm or 537 a diversification option disconnected from agricultural production. This disconnect may stem from a 538 historic deep rooted cultural view of farming and forestry as two very separate systems, that is 539 particularly prevalent in the UK (Scambler, 1989; Dhubháín and Gardiner, 1994; Lawrence and Dandy 2014), and negative connotations of past large-scale afforestation of farmed landscapes in the 20th 540 541 century (Raum, 2020). Nonetheless there is momentum towards their greater integration as part of 542 a low carbon economy.

A limited amount of coverage links trees into 'the productive farming system' - which we identify within our third theme focused on 'enhancement' - demonstrating how they could be adopted as a stand-alone diversification option, but also how they might enhance the agricultural productivity of 546 the farming unit. One example includes examination of a farming unit where fruit trees are 547 integrated into their livestock systems (2019 FW 28), however this does not feature in the dedicated 548 livestock section of the publication, nor does it provide much detail on the benefits of this for the 549 livestock element of the system. Such types of coverage were found by Rust et al. (2021) to be the 550 most common pieces of coverage to stimulate farmers to try things out having read about them in 551 the farming press. Farmer attitudes towards tree planting shouldn't be assumed to simply be 'for' or 552 'against'. Rather, alongside tree planting by some enthusiastic farmers, it is clear that there are opportunities to capitalise on farmers' "accidental environmentalism" (Marr and Howley, 2019) via 553 554 which farmers undertake pro-environmental actions (e.g., production improvements or chemical reductions) for reasons which have little, if anything, directly to do with pro-environmental 555 556 motivations. This reveals an area wherein the farming press could play a strong role in facilitating 557 afforestation – identifying opportunities for tree planting which meet core farming objectives and 558 sequester carbon incidentally.

559 **4.3 Implications for future research**

560 The findings of this study raise a number of further questions which were beyond the scope of this present research, but which generate opportunities for follow-up investigations. We recommend, 561 562 for example, further in-depth research via interview or survey methods, to more fully understand 563 how farmers engage with media like Farmers Guardian and Farmers Weekly in their decision-making 564 process around tree planting. In addition, it would be productive to explore whether the themes 565 identified above are manifest within other media outlets and social media channels (Casey, 2016; 566 Stanley, 2020), and how they relate to and may be representative of different groups of farmers. To deepen appreciation of the process of co-producing media content in this arena, we also 567 568 recommend further work with sector journalists to understand their decision-making on what to 569 print and how narratives are constructed, as has recently been done, for example, in relation to 570 coverage of sustainable finance in Europe (Strauß, 2021). Finally, additional analysis is also needed 571 to explore the relationships between the content of sectoral publications such as those analysed 572 here, and their need to ensure advertising and sponsorship revenues. Such publications often have 573 substantial advertising and 'classifieds' sections and, whilst strict ethical guidelines deter direct 574 influence of the content of individual stories, overall content needs to focus on issues, themes and 575 subjects that attract a readership relevant to those marketing opportunities. Rust et al (2021) 576 identify this relationship as a key influence on how much trust farmers place in their sector's press.

577 **5. CONCLUSIONS**

578 The farming press have an important role in shaping industry agendas and farm level decision 579 making around agricultural practices and awareness of environmental measures. Is the farming 580 press a supporter of, or a barrier to, achieving meaningful carbon sequestration via tree planting on 581 farmland in the UK? In our study we found a very low level of coverage of tree planting on farmland 582 as a means of climate change mitigation. We found that some key messages from high level policy 583 documents and academic research relating to tree planting and climate change are either 584 overlooked by the farming press or only covered when they support the established agenda of the 585 farming sector. Rather than seeking ways to bring farmers together with foresters and other tree-586 focused stakeholders, much current coverage builds on historical legacies to engender an angry 587 defensiveness or at best a resigned scepticism towards trees in the farming sector. A determined 588 scepticism of the economic dimensions of tree planting is maintained within the farming press, with 589 few efforts to actively explore the potential positive contributions to farming businesses it could 590 bring. This enables farmers to dismiss this particular route to diversification and climate change 591 mitigation if they wish. By breaking down rather than constructively exploring the opportunity for 592 trees to contribute to a productive farming unit that assists with decarbonisation of the wider 593 economy, coverage of tree planting within the farming press seemingly remains a barrier to 594 meaningful afforestation on farmland in the UK. Nonetheless, there is a greater opportunity here for 595 the farming press in the UK to better support farmers exploring new ideas such as mixing trees into 596 their farming business through more in-depth coverage of such issues. There is a need to explore 597 and clearly describe through case-study and demonstration how trees in farming systems can be 598 used to meet policy goals and enhance the productive capacity of farming systems. Integrating tree 599 related topics among other technical agricultural coverage arguably plays a key role in modifying the 600 narrative away from trees versus farming towards normalising trees on farms and achieving the 601 additional co-benefits of climate change mitigation.

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