# **Howard Farm Tender Application**

**Henry Scholefield** 

Rent Tendered = £62280/year

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#### Context

This is a tender application for Howard Farm, a 209-hectare mixed farm in North Nottinghamshire. The 5-year Farm Business Tenancy being offered for let commences on 1st September 2020. The current tenants have a mix of arable and root cropping, livestock and a DIY horse livery. The farm has good infrastructure with secure buildings, grain storage, an irrigation license and associated pipework as well as fields fenced with three strands of barbed wire and running water access. The farm is in an NVZ and consists of light, sandy soils, vulnerable to droughts, wind erosion and nutrient leaching. The owners are seeking a tenant to farm profitably and sustainably, enhancing the farm's natural capital. Available funds with which to start the business are £20000.

# **Summary of Business Plan**

This business plan is comprised of several enterprises with a diverse arable rotation, environmental stewardship scheme, contract heifer rearing, contract grain storage and a DIY horse livery. The proposal is focused on enhancing the farm's natural capital assets, both through the arable rotation designed to preserve and improve soil health with the integration of livestock along with the stewardship scheme increasing farmland habitats and biodiversity. The proposal also seeks to maximise the utilisation of the farm's other resources such as the grassland and buildings achieved through both the DIY horse livery and the heifer rearing and grain storage for third parties, enterprises which require minimal initial investment due to limited personal finance of only £20000. Despite this, cash flow is an issue for the business with a heavy reliance on an overdraft facility as further loans would not be possible due to a lack of assets to use a guarantee. The business is profitable, with profit peaking at £92101 in Year 4 and net worth increasing from £20000 in Year 1 to £154,241 by Year 5.

#### **Enterprises**

#### Cropping

The majority of the land (171.8ha) will be farmed under an 8-year arable rotation, planned using previous cropping information with an emphasis on improving soil health. The basic rotation will comprise beet followed by spring naked oats, potatoes, winter wheat and maize before being sown with a 3-year grass ley. Table 1 shows the area of each crop grown across the five years. Spraying, fertiliser spreading, hedge cutting, light cultivations and telehandler work as well as grain, beet and straw carting will be done in-house, with all other field operations being completed by contractors.

Table 1: Proposed cropping areas between September 2020 and August 2025.

Crop	2020/21 (ha)	2021/22 (ha)	2022/23 (ha)	2023/24 (ha)	2024/25 (ha)
Horse Grass	7.3	7.3	7.3	7.3	7.3
Horse Hay	7.6	7.6	7.6	7.6	7.6
Permanent Pasture					
grass	13.3	13.3	13.3	13.3	13.3
Temporary Grass Ley	62	61.7	56.1	53	59.3
Winter Wheat	16.4	18.1	24.8	32	18.8
<b>Spring Naked Oats</b>	24.8	32	18.8	22	21.2
Potatoes	18.1	24.8	32	18.8	22
Fodder Beet	10.5	10.2	10.9	10.5	9.3
Sugar Beet	21.5	8.6	11.1	10.7	9.2
Maize	18.5	16.4	18.1	24.8	32
Stewardship	7.6	7.6	7.6	7.6	7.6
Cover crops (before					
maize/potatoes)	36.6	41.2	50.1	43.6	54
Total	207.6	207.6	207.6	207.6	207.6

Approximately 10ha of fodder beet will be grown for the cattle, with the rest of the beet area comprising sugar beet, sold to British Sugar's Newark factory 19 miles away (British Sugar, 2020). The farm's light land will facilitate later harvesting, maximising yield. Following beet spring naked oats will be grown, which have similar agronomic requirements to conventional varieties and after August harvesting, will be sold in three instalments to Premium Crops (Premium Crops, 2020). Although 15-20% lower yielding, rising demand in the health food and animal feed sectors have resulted in naked oats commanding a £55/tonne price premium over husked varieties (Redman, 2019).

Maincrop potatoes will be planted in April after naked oats, harvested and sold in September. As well as providing the highest gross margin, potatoes are being grown to utilise the farm's irrigation license and pipework infrastructure. Limiting potato growing to every eight years and subsoiling before the subsequent winter wheat crop will minimise the soil damage potatoes will cause the farm.

The feed winter wheat will be sold in four instalments after harvest until the following June in a strategy designed to spread price risk. Selling cereal straw would increase revenue by up

to £12000/year but, despite this, straw will be chopped and incorporated. Chopping straw will improve soil health, increasing organic matter and nutrient levels whilst avoiding compaction from straw baling and carting (Ball *et al.*, 1990; Guo *et al.*, 2013).

Maize will be sown after wheat and sold as a standing crop at harvest for £900/ha either to local livestock farmers or to one of the three anaerobic digestion plants using maize within a 10-mile radius of the farm (NNFCC, 2019). The maize acreage is limited due to potential soil damage at harvest in a wet Autumn although the sandy soil type should reduce the harvesting risk.

The grass ley will be established by undersowing in the growing maize crop, providing winter cover to reduce soil erosion and nitrate leaching from maize stubbles without penalising maize yield, with the grass potentially absorbing £21/ha worth of nitrogen (Whitmore and Schröder, 2007; Morgan, 2019). An application will be made to Severn Trent Water for their £30/ha grant available for undersowing early harvested maize stubbles although grass will be established by undersowing regardless of the grant (Severn Trent Water, 2019). A slug pelleter will be used in June to broadcast 20kg/ha of Cotswold's Light Land Beef/Sheep mix into the maize crop, selected due to its drought tolerance through inclusion of species such as cocksfoot, maintaining production for longer in dry summers (Cotswolds Seeds, 2020b). In the following spring, 10kg/ha of a ryegrass seed will be applied with a harrow to cover any gaps in the sward. As well as reducing the blackgrass seedbank by 70-80% each year, the arable rotation will also benefit from grass leys through manure deposition during grazing, increasing soil organic matter (Moss, 2017).

A cover crop mix comprising radish and vetch will be sown after harvesting cereal crops, being grazed by cattle in early spring before planting potatoes or maize. Cover crops will benefit the farm's arable cropping through increasing soil organic matter which improves structure and increases earthworm abundance (GWCT, 2018). This improves water holding capacity which will lower the drought risk on these sandy soils (Bodner *et al.*, 2010). Furthermore, these cover crops will increase soil nitrogen levels, due to both the inclusion of vetch (a nitrogen fixing, leguminous plant) and by absorbing soil nitrogen to minimise leaching losses, also reducing water pollution (Thapa *et al.*, 2018).

#### **Mid-Tier Countryside Stewardship**

A five-year, mid-tier countryside stewardship agreement is proposed alongside the arable cropping, commencing on 1<sup>st</sup> January 2021 ending on 31<sup>st</sup> December 2025. Before applying, the landlord's permission would be sought and we would fulfil this agreement until the end of the tenancy on 31<sup>st</sup> August 2025, after which the agreement could either be cancelled or continued by the subsequent tenant.

Table 2 outlines the proposed agreement options and income, with an annual revenue of £17903. After sowing in spring 2021, the flower rich margins will last for the duration of the agreement. Annually sown wild bird food plots facilitate eligibility for 3 tonnes of supplementary bird feeding between December and April. These plots will be sited in awkward field corners prone to compaction which are less productive, increasing working efficiency of arable operations. The GS3 requires a cut of silage to be taken by 31st May

before leaving the field un-grazed for the rest of the year. The risk of nitrate leaching from light sandy soils and the fact the farm is in an NVZ makes the land eligible for cover crop funding (Environment Agency, 2020).

Table 2: Proposed Mid-Tier Countryside Stewardship Scheme Options and Income.

Code	Title	Income (£/ha/year)	Area Proposed (ha)	Total Income (£/year)
AB8	Flower Rich Margins	539	1.5	809
AB9	Wild Bird Food	640	6.1	3904
AB12	Supplementary Bird Feeding	£632/tonne	3 tonnes	1896
GS3	Ryegrass seed-set as feed for winter birds	331	20	6620
SW6	Winter Cover Crops	114	41	4674
TOTAL				17903

As well as a revenue source, this scheme should increase farmland biodiversity and reduce pollution. On top of providing a food source for birds, wild bird food plots significantly increase invertebrate abundance (Holland *et al.*, 2014). Pollen, nectar and habitat from flower rich margins may increase crop yields due to encouraging greater pollinator and crop pest predator insect populations (Pywell *et al.*, 2015). Cover crops will reduce nitrate leaching and soil erosion, limiting pollution of both the nearby River Idle and groundwater (Thapa *et al.*, 2018).

Should this proposed agreement not be accepted, the business would still be viable. If the scheme didn't run, utilised dry matter production of the 20ha of GS3 would increase by 5 tonnes/ha, meaning an extra 100 tonnes of dry matter allowing an extra 32 heifers to be stocked, increasing revenue in this enterprise by £12848, offsetting a large proportion of the stewardship scheme's revenue. Cover crops would be grown regardless due to their soil health benefits and compatibility with heifer rearing.

#### **Contract Heifer Rearing**

The grass leys, permanent pasture, fodder beet and cover crops will be utilised through a contract heifer rearing enterprise. Contract heifer rearing has been selected due to offering an opportunity to get livestock on the farm with minimal initial start-up costs. Heifers would arrive anywhere from 6 months of age, staying for between a few months or until several weeks before calving, raised entirely outdoors. Although considerable variation, average liveweight will be expected to be 400kg, therefore each heifer requires 8.4kg of dry matter daily. Total expected winter and summer dry matter production has been calculated to establish stocking rates which vary between 300-400 each year, although stocking rates will be lower in case of a dry summer impacting on feedstock production. Heifer numbers are expected to gradually increase due to advertising in farming publications before reaching a maximum of 300 in Year 4.

A flexible, rotational grazing system like the previous tenant will be adopted with such systems increasing grass utilisation by 56% compared to set stocking (AHDB, 2016). Any

surplus grazing will be cut for silage, along with the 20ha of GS3. Winter forage consists of silage, late season grazing and strip grazed fodder beet and cover crops. Fees will be £1.10/day, inclusive of all feed and concentrates, routine veterinary costs and other livestock expenses. The infrastructure required and the outdoor system means artificial insemination will not be offered, therefore any insemination would be with a bull, which the owner would provide. Heifers would be grouped according to age and source farm to maintain biosecurity.

#### **Contract Grain Storage**

Due to growing some non-cereal crops, predicted grain output will peak at only 366 tonnes in 2024. After drying, the grain store adjacent to the current workshop will have enough capacity to store the wheat and oats we produce, leaving the grain store shed opposite the stables empty. This shed will be utilised through contract grain storage for local farmers or grain trading companies, with the farm's locational proximity to the A1, M1 and A57 used as a marketing tool (Google Maps, 2020). Grain will come in during September/October, being stored for an average of six months.

Predicted capacity of the grain store is 2962 tonnes, calculated from the scale map with the building measuring 40m by 25m, with a panel height of 4m. After accounting for the capacity lost next to the doors, maximum grain intake into the store will be 2500 tonnes, with the tonnage stored increasing annually as more business is sought, reaching capacity by year 3. Fees will be £2/tonne/month for storage and a £2/tonne handling charge, with grain drying offered for £11/tonne to reduce moisture content by 3%. A weighbridge will not be purchased for this enterprise to limit the investment required therefore the storage fees reflect customers having to weigh grain elsewhere prior to storage.

This enterprise justifies the purchase of a Telehandler to out-load grain. Over the five years, income from the handling charges alone will be £22000, effectively paying for the £21950 purchase price of the telehandler.

#### **Horse Livery**

The horse livery will be operated on a DIY basis, in a similar system to the previous tenant with the owner responsible for all labour and veterinary costs associated with the horse, but the horses' hay will be provided. The existing customers will be invited to remain at the livery before advertising any surplus spaces to the local equestrian market through low-cost social media platforms. The 18 livery spaces are expected to operate at 85-90% occupancy (16 horses), with each horse charged £75 per week. This price was based on the Nix average of £55 for DIY livery with grazing, but with £20 per week added to reflect use of the horse walker and hay (Redman, 2019).

Initially conventional hay bales will be purchased at £4/bale until July 2021 when the farm's own hay will have been made. One cut of hay will be taken from the 7.6ha Bottom Grass field, conservatively estimated to yield 1900 bales, satisfying the 1600 bale annual requirement, with the possibility of selling surplus bales. Hay will be stored in the general storage shed adjacent to the workshop.

Grazing requirement has been budgeted at 0.4ha/horse but 7.3ha of grass has been budgeted for horse grazing, allowing an extra 0.9ha should any paddock become unusable (Redman, 2019). To split the four fields into 0.4ha paddocks (roughly 60 by 65m) 1.5km of electric fencing is expected to be required, which has been quoted to cost £2850 (Gallagher, 2020).

# **Year 1 Accounts**

Table 2 shows net cash flow in Year 1 is -£232,131 resulting in a closing bank balance of -£212,131. This is due to incurring growing crop costs in Year 1 but with no crop sale income until Year 2 as shown in Table 3. Year 1 profit is -£42575, due to the heifer rearing and grain storage enterprises initially operating below capacity. Table 4 shows that net worth decreases by £60453 to -£40453 at the end of Year 1, due to loan and overdraft liabilities.

Table 2: Year 1 Cash Flow Budget

Month	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Year
Trading Receipts	6025	17003	9025	9905	9905	9740	10758	7675	7758	8500	8610	8610	113513
Capital Receipts	70000	0	0	0	0	0	0	0	0	0	0	0	70000
<b>Trading Payments</b>	14883	16176	10765	11975	11472	22989	30779	59119	25039	37955	26679	21741	289572
<b>Capital Payments</b>	80813	3024	3024	3024	3024	3024	3024	3024	3024	3024	3024	3024	114072
Personal Payments	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	12000
Net Cash Flow	-20670	-3197	-5764	-6093	-5151	-17271	-24044	-55466	-21303	-33477	-22091	-17153	-232131
Opening Bank Balance	20000	-670	-3867	-9631	-15724	-20875	-38145	-62189	-117655	-138958	-172435	-194526	20000
Closing Bank Balance	-670	-3867	-9631	-15724	-20875	-38145	-62189	-117655	-138958	-172435	-194526	-211679	-212131

**Table 3: Year 1 Profit and Loss Account** 

Valuation as at 1st Sept 2020		Valuation as at 31st Augu	ıst 2021
Opening Valuation		Closing Valuation	
Grain	0	Grain	41463
Sugar Beet	0	Sugar Beet	13603
Fodder Beet	0	Fodder Beet	5447
Potatoes	0	Potatoes	66763
Maize	0	Maize	6605
Silage	0	Silage	16829
Hay	0	Hay	2791
TOTAL	0	TOTAL	153500
Expenditure		Revenue	
Seed	33942	Heifer Rearing	25163
Fertiliser	37089	Horse Livery	62400
Sprays	29513	Grain Storage	25950
Other Crop Costs	10250		
Grain Drying	2810		
Concentrates	2938		
Vet and Med	1250		
Other Livestock Costs	2063		
Horse Hay	6336		
Bird Seed	660		
Fixed Costs	159644		
Depreciation	20016		
Interest	3079		
TOTAL	309588	TOTAL	113513
Profit	-42575		
Net Farm Income (NFI)	-39496		

**Table 4: Year 1 Balance Sheet** 

Balance Sheet	Year Start	Year End
Fixed Assets	1st September 2020	31st August 2021
Machinery	0	120073
Total Fixed Assets	0	120073
Current Assets		
Grain	0	41463
Forage bales	0	19620
Crops in ground	0	92418
Cash at bank	20000	0
Total Current Assets	20000	153500
Total Assets	20000	273574
<b>Current Liabilities</b>		
Bank Loans	0	58660
Non-bank Loans	0	43236
Bank Overdraft	0	212131
Total Current Liabilities	0	314027
Net Worth	20000	-40453

# **Year 2 Accounts**

Net cash flow in Table 5 is -£32072 making closing bank balance lower (-£244678), although net cash flow is much greater than in Table 2 due to receipts from the previous year's cropping, as shown in Table 6. A small profit of £22370 is made in Year 2, increasing net worth to -£30084.

**Table 5: Year 2 Cash Flow Budget** 

Month	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Year
<b>Trading Receipts</b>	134279	45940	44102	33101	19543	13820	20395	17826	11168	17028	12020	12020	381240
Capital Receipts	0	0	0	0	0	0	0	0	0	0	0	0	0
<b>Trading Payments</b>	53830	17184	24330	13592	11483	22737	30766	70820	26645	41684	28515	23917	365504
<b>Capital Payments</b>	3024	3024	3024	3024	3024	3024	3024	3024	3024	3024	3024	3024	36283
Personal Payments	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	12000
Net Cash Flow	76425	24732	15749	15485	4036	-12941	-14395	-57017	-19501	-28681	-20519	-15920	-32546
Opening Bank Balance	-212131	-135706	-110974	-95225	-79740	-75704	-88645	-103039	-160057	-179558	-208238	-228757	-212131
Closing Bank Balance	-135706	-110974	-95225	-79740	-75704	-88645	-103039	-160057	-179558	-208238	-228757	-244678	-244678

**Table 6: Year 2 Profit and Loss Account** 

Valuation as at 1st Sept 2021		Valuation as at 31st August	2022
Opening Valuation		Closing Valuation	
Grain	41463	Grain	49598
Sugar Beet	13603	Sugar Beet	5441
Fodder Beet	5447	Fodder Beet	5292
Potatoes	66763	Potatoes	91476
Maize	6605	Maize	5855
Silage	16829	Silage	16829
Hay	2791	Hay	2791
TOTAL	153500	TOTAL	177281
Expenditure		Revenue	
Seed	39264	Grain Sales	41463
Fertiliser	37416	Sugar Beet	30777
Sprays	32523	Potatoes	118103
Other Crop Costs	13872	Maize	16650
Grain Drying	3627	Heifer Rearing	65313
Concentrates	7638	Horse Livery	62400
Vet and Med	3250	Grain Storage	34600
		Mid-Tier	
Other Livestock Costs	5363	Stewardship	11935
Horse Hay	0		
Bird Seed	660		
Fixed Costs	215252		
Depreciation	17148		
Interest	6641		
TOTAL	382651	TOTAL	381240
Profit	22370		
Net Farm Income (NFI)	29011		

**Table 7: Year 2 Balance Sheet** 

Balance Sheet	Year Start	Year End
Fixed Assets	1st September 2021	31st August 2022
Machinery	120073	102925
Total Fixed Assets	120073	102925
Current Assets		
Grain	41463	49598
Forage bales	19620	19620
Crops in ground	92418	108064
Cash at bank	0	0
Total Current Assets	153500	177281
Total Assets	273574	280207
<b>Current Liabilities</b>		
Bank Loans	58660	43995
Non-bank Loans	43236	21618
Bank Overdraft	212131	244678
Total Current Liabilities	314027	310290
Net Worth	-40453	-30084

# **Year 3 Accounts**

Net cash flow for Year 3 in Table 8 is just negative, -£1413, resulting in a closing bank balance of -£246,091, which is the most overdrawn the bank balance is expected to be throughout the five years. Profit is greater in Table 9 than in previous years, making £58890 which increases net worth to become a positive value, £16807 although this is still lower than at the beginning of Year 1.

Table 8: Year 3 Cash Flow Budget

Month	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Year
<b>Trading Receipts</b>	182460	50799	29111	43763	23642	17130	23642	21465	13725	19219	13725	13725	452406
Capital Receipts	0	0	0	0	0	0	0	0	0	0	0	0	0
Trading Payments	69440	19292	16497	14860	11671	23335	32743	84729	30016	46329	31692	24933	405536
<b>Capital Payments</b>	3024	3024	3024	3024	3024	3024	3024	3024	3024	3024	3024	3024	36283
Personal Payments	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	12000
Net Cash Flow	108997	27484	8590	24879	7947	-10228	-13125	-67288	-20314	-31133	-21991	-15231	-1413
Opening Bank Balance	-244678	-135681	-108197	-99607	-74727	-66780	-77009	-90134	-157421	-177736	-208869	-230860	-244678
Closing Bank Balance	-135681	-108197	-99607	-74727	-66780	-77009	-90134	-157421	-177736	-208869	-230860	-246091	-246091

**Table 9: Year 3 Profit and Loss Account** 

Valuation as at 1st Sept 2022		Valuation as at 31st August 2023			
Opening Valuation		Closing Valuation			
Grain	49598	Grain	47201		
Sugar Beet	5441	Sugar Beet	7023		
Fodder Beet	5292	Fodder Beet	5655		
Potatoes	91476	Potatoes	118034		
Maize	5855	Maize	6462		
Silage	16829	Silage	16829		
Hay	2791	Hay	2791		
TOTAL	177281	TOTAL	203994		
Expenditure		Revenue			
Seed	47609	Grain Sales	49598		
Fertiliser	39315	Sugar Beet	12311		
Sprays	38877	Potatoes	161820		
Other Crop Costs	17424	Maize	14760		
Grain Drying	4297	Heifer Rearing	90365		
Concentrates	10575	Horse Livery	62400		
Vet and Med	4500	Grain Storage	43250		
		Mid-Tier			
Other Livestock Costs	7425	Stewardship	17903		
Horse Hay	0				
Bird Seed	660				
Fixed Costs	228237				
Depreciation	14692				
Interest	6617				
TOTAL	420228	TOTAL	452406		
Profit	58890				
Net Farm Income (NFI)	65507				

**Table 10: Year 3 Balance Sheet** 

Balance Sheet	Year Start	Year End
Fixed Assets	1st September 2022	31st August 2023
Machinery	102925	88234
Total Fixed Assets	102925	88234
<b>Current Assets</b>		
Grain	49598	47201
Forage bales	19620	19620
Crops in ground	108064	137173
Cash at bank	0	0
Total Current Assets	177281	203994
Total Assets	280207	292227
<b>Current Liabilities</b>		
Bank Loans	43995	29330
Non-bank Loans	21618	0
Bank Overdraft	244678	246091
<b>Total Current Liabilities</b>	310290	275421
Net Worth	-30084	16807

# **Year 4 Accounts**

Closing bank balance in Table 11 at the end of Year 4 is -£139,140, significantly better than Year 3 due to a positive net cash flow of £106,951. The positive net cash flow is due to increased payments seen in Table 12, received both from the greater area of potatoes in Year 3 and the heifer rearing and grain storage enterprises which are operating at maximum capacity by Year 4. Reduced capital payments in Table 11 also boost cash flow, due to the tractor hire purchase paid off at the end of Year 3, allowing private drawings to increase to £1500 per month in Year 4. Fewer hire purchase and overdraft liabilities as well as the £92101 profit in Year 4 result in a closing net worth of £90908, shown in Table 13.

**Table 11: Year 4 Cash Flow Budget** 

Month	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Year
<b>Trading Receipts</b>	228269	57023	35165	42674	27483	18670	28335	20294	15430	23005	15430	15430	527205
Capital Receipts	0	0	0	0	0	0	0	0	0	0	0	0	0
Trading Payments	84957	20858	18369	16195	11969	22799	31973	60071	27024	42157	27822	23396	387590
<b>Capital Payments</b>	1222	1222	1222	1222	1222	1222	1222	1222	1222	1222	1222	1222	14665
Personal Payments	1500	1500	1500	1500	1500	1500	1500	1500	1500	1500	1500	1500	18000
Net Cash Flow	140589	33443	14074	23756	12791	-6851	-6360	-42499	-14316	-21874	-15114	-10688	106951
Opening Bank Balance	-246091	-105502	-72059	-57985	-34229	-21437	-28289	-34649	-77148	-91464	-113338	-128452	-246091
Closing Bank Balance	-105502	-72059	-57985	-34229	-21437	-28289	-34649	-77148	-91464	-113338	-128452	-139140	-139140

**Table 12: Year 4 Profit and Loss Account** 

Valuation as at 1st Sept 2023		Valuation as at 31st Augu	ıst 2024
Opening Valuation		Closing Valuation	
Grain	47201	Grain	59033
Sugar Beet	7023	Sugar Beet	6770
Fodder Beet	5655	Fodder Beet	5447
Potatoes	118034	Potatoes	69345
Maize	6462	Maize	8854
Silage	16829	Silage	16829
Hay	2791	Hay	2791
TOTAL	203994	TOTAL	169068
Expenditure		Revenue	
Seed	35626	Grain Sales	47201
Fertiliser	37497	Sugar Beet	15890
Sprays	30154	Potatoes	208800
Other Crop Costs	10994	Maize	16290
Grain Drying	4544	Heifer Rearing	115473
Concentrates	13513	Horse Livery	62400
Vet and Med	5750	Grain Storage	43250
		Mid-Tier	
Other Livestock Costs	9488	Stewardship	17903
Horse Hay	0		
Bird Seed	660		
Fixed Costs	235365		
Depreciation	12589		
Interest	4000		
TOTAL	400178	TOTAL	527205
Profit	92101		
Net Farm Income (NFI)	96102		

**Table 13: Year 4 Balance Sheet** 

Balance Sheet	Year Start	Year End
Fixed Assets	1st September 2023	31st August 2024
Machinery	88234	75645
Total Fixed Assets	88234	75645
<b>Current Assets</b>		
Grain	47201	59033
Forage bales	19620	19620
Crops in ground	137173	90416
Cash at bank	0	0
Total Current Assets	203994	169068
Total Assets	292227	244713
<b>Current Liabilities</b>		
Bank Loans	29330	14665
Non-bank Loans	0	0
Bank Overdraft	246091	139140
<b>Total Current Liabilities</b>	275421	153805
Net Worth	16807	90908

# **Year 5 Accounts**

Table 14 shows bank balance is positive for 5 months in Year 5 although closing bank balance is negative (-£33454). Selling Year 5's grain at harvest increases August receipts and revenue in Table 15 with a profit of £81333. The high overdraft seen throughout the five years is substantially better by Year 5. Despite this, the business proposal is profitable, demonstrated by a closing net worth in Table 16 of £154,241, an increase of £134,241 on Year 1's opening net worth.

**Table 14: Year 5 Cash Flow Budget** 

Month	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Year
Trading Receipts	143848	66200	35417	44410	30630	19440	30630	21178	15430	25300	15430	56970	504882
Capital Receipts	0	0	0	0	0	0	0	0	0	0	0	0	0
<b>Trading Payments</b>	59399	18025	17923	16215	11875	22480	32248	65213	29342	42746	29265	21798	366531
<b>Capital Payments</b>	1222	1222	1222	1222	1222	1222	1222	1222	1222	1222	1222	1222	14665
Personal Payments	1500	1500	1500	1500	1500	1500	1500	1500	1500	1500	1500	1500	18000
Net Cash Flow	81726	45453	14771	25473	16033	-5762	-4340	-46758	-16634	-20169	-16557	32449	105686
Opening Bank Balance	-139140	-57414	-11962	2810	28282	44315	38553	34213	-12544	-29178	-49347	-65904	-139140
Closing Bank Balance	-57414	-11962	2810	28282	44315	38553	34213	-12544	-29178	-49347	-65904	-33454	-33454

**Table 15: Year 5 Profit and Loss Account** 

Valuation as at 1st Sept 2024		Valuation as at 31st August 2025			
Opening Valuation		Closing Valuation			
Grain	59033	Grain	0		
Sugar Beet	6770	Sugar Beet	5821		
Fodder Beet	5447	Fodder Beet	4825		
Potatoes	69345	Potatoes	81148		
Maize	8854	Maize	11424		
Silage	16829	Silage	16829		
Hay	2791	Hay	2791		
TOTAL	169068	TOTAL	122838		
Expenditure		Revenue			
Seed	40956	Grain Sales	100572		
Fertiliser	36794	Sugar Beet	15317		
Sprays	30225	Potatoes	122670		
Other Crop Costs	12220	Maize	22320		
Grain Drying	4162	Heifer Rearing	120450		
Concentrates	14100	Horse Livery	62400		
Vet and Med	6000	Grain Storage	43250		
		Mid-Tier			
Other Livestock Costs	9900	Stewardship	17903		
Horse Hay	0				
Bird Seed	660				
Fixed Costs	210067				
Depreciation	10787				
Interest	1447				
TOTAL	377318	TOTAL	504882		
Profit	81333				
Net Farm Income (NFI)	82780				

**Table 16: Year 5 Balance Sheet** 

Balance Sheet	Year Start	Year End
Fixed Assets	1st September 2024	31st August 2025
Machinery	75645	64858
Total Fixed Assets	75645	64858
Current Assets		
Grain	59033	0
Forage bales	19620	19620
Crops in ground	90416	103218
Cash at bank		0
Total Current Assets	169068	122838
Total Assets	244713	187696
<b>Current Liabilities</b>		
Bank Loans	14665	0
Non-bank Loans	0	0
Bank Overdraft	139140	33454
<b>Total Current Liabilities</b>	153805	33454
	_	
Net Worth	90908	154241

# **Capital Requirement**

#### **Equipment and Machinery**

Due to the high cost of machinery and limited capital availability, much of the arable fieldwork will be completed by contractors although a new 130 horsepower John Deere tractor will be purchased, costing £70000. Buying a new tractor with a three-year warranty and service package helps financial planning as there will be no extra, potentially substantial repair bills. This tractor will operate the machinery purchased in September 2020 with items purchased, prices, age and depreciation rates shown in Table 18 with images in Appendix 1. The timing of operations for the machinery purchased is spread throughout the year, being manageable by myself with the operations unlikely to clash with one another. The sprayer and fertiliser spreader will allow agrochemical application timings to be optimised as it removes the need for these operations to fit around contractor availability.

Table 18: Items of machinery and equipment purchased including price, age and depreciation rate (FBS, 2019; Farm AutoTrader, 2020i)

Item	Cost	Age at 31st Aug 2020	<b>Depreciation Rate</b>
John Deere 6130R Tractor	70000	0	14%
Kramer 2506 Telehandler (With			
Forks)	21950	10	14%
Telehandler Attachments			
(Bucket/grab)	2500	1	14%
Honda TRX420 Quad Bike	4400	4	17%
Griffiths 12 tonne grain trailer	7950	13	15%
Richard Western 19ft bale trailer	2495	20	15%
Wiberg 4.26m spring tine cultivator	2850	24	12%
Knight 3000L Sprayer, 24m boom	7950	21	15%
Amazone ZA-X Fertiliser spreader	1850	13	12%
Bomford Hedge Cutter	3999	22	15%
Mobile Cattle Handling System	10200	0	15%
Cattle Ring Feeder (x3)	597	0	15%
Cattle Electric Fencing	498	0	15%
Horse Electric Fencing	2850	0	15%
TOTAL	140089		

A telehandler along with attachments will also be purchased. Primarily, it will be required for the grain storage enterprise to load lorries and move grain, but it will also be used to cart and feed silage bales for the cattle. Although older, this machine only has 4900 hours and is in good condition (Farm AutoTrader, 2020f).

The heifer rearing enterprise will not require the purchase of livestock although it will require some specialist equipment in order to outwinter the cattle, shown in Table 18. Ring feeders will be needed to feed cattle silage along with electric fencing to facilitate strip grazing fodder beet. A mobile cattle handling system will be purchased to complete routine husbandry tasks in-situ. A grant of 40% towards the cost of a new system will be applied for under the Countryside Productivity Small Grant Scheme which would be worth £4080

although has not be included in the budgets in case the application is unsuccessful (DEFRA, 2019). A four-year-old quad bike will also be purchased for cattle handling.

The only equipment required by the horse livery is electric fencing and batteries to fence the grazing fields into individual paddocks.

#### <u>Labour</u>

Most of the labour will be provided by myself, although casual labour will be required for potato harvest, costing £990/ha (Redman, 2019). The other wage cost is for relief cattle shepherding by a self-employed worker two hours per day every other weekend and for two weeks holiday cover, costing £14.51/hour amounting to £1799 annually. This small cost is justified as, the reduced mental and physical strain by allowing me to have time off will make the business personally sustainable.

#### **Finance**

A medium term, £70000 loan will be sought from HSBC in September 2020 to be paid back monthly over 5 years, with a 1% set up fee and 4.75% interest rate (I. Messenger 2019, pers. Comm. 29 November). This, along with personal savings of £20000 invested into the business will fund the machinery and equipment purchases in September 2020 shown in Table 18. With no land owned, the machinery will be used as a guarantee against the loan.

The new tractor will be bought on hire purchase from John Deere which, after a 10% initial deposit, will leave £63000 to be paid monthly over 3 years with a 2.08% interest rate, equating to a monthly payment of £1801.48 (see Appendix 2), (John Deere, 2020b).

An overdraft facility of £275,000 would also be obtained to provide the working capital needed to establish crops and cover fixed costs, with money borrowed at 4.75% interest. The overdraft required is so high due to both the lack of initial funds and assets with which to secure greater loans. The cash flow forecasts maximum overdraft to be £246,091 but a higher overdraft would be beneficial in the event of any unforeseen delayed receipts.

# **Assumptions**

Yield and costs for growing winter wheat and sugar beet were assumed to be the same as those for the previous tenant. Current price for sugar beet was obtained from British Sugar (2019) and wheat price was taken from November 2021 futures (AHDB, 2020a). Prices and costs for spring naked oats were obtained from average Nix values for winter naked oats although oat yield and fertiliser inputs were lowered by 15% (Redman, 2019). Average maize costs and standing crop price as well as potato yields and costs were obtained from Nix (Redman 2019). Potato price was based on current prices (AHDB, 2020b).

Grain storage and handling charges were taken from Nix, assuming grain is stored for an average of 6 months from 30th September to 31st March (Redman, 2019). Drying charges were obtained from Craig (2018), assuming 30% of grain will require drying by 3%, with each tonne requiring 1.35m<sup>3</sup> of space.

Heifer rearing price is £1.10/day per animal, with concentrate, veterinary and other costs for heifer rearing sourced from Craig (2018). Estimated average liveweight is 400kg, with required dry matter intake found from Alderman and Cottrill (1993). Annual utilised dry matter yield from grazing was assumed to be the same as the existing tenant (12 tonnes/ha) with yield from other forage crops obtained from Craig (2018). Variable costs for fodder beet and the various grassland types, except seed, were obtained from Nix (Redman, 2019). Grass seed prices were sought from Cotswolds Seeds (2020a) with beet seed price from Farmseeds (2020).

Mid-Tier stewardship payments were obtained from DEFRA (2020). Seed prices required for the agreement were obtained from Cotswolds Seeds (2020b).

The horse livery is assumed to run at 85-90% occupancy with each horse charged £75 per week. Hay consumption is budgeted at two conventional (20kg) bales per week resulting in an annual requirement of 1600 bales, with purchased bales costing £4 (Redman, 2019). Horse grazing requirement is assumed to be 0.4ha (Redman, 2019).

Price of the new John Deere tractor was obtained from directly from a sales representative at Cornthwaite's Agricultural (N. Tiffin 2020, pers. Comm. 27 February). Livestock equipment is to be bought new with the price of electric fencing quoted from Gallagher (2020), ring feeders from Mole Valley (2020) and the handling system from DEFRA (2019). Items of second-hand machinery and their prices were found on Farm AutoTrader (2020i).

FBS percentage depreciation values for machines shown in Table 18 were used to calculate annual depreciation of each machine based on its value at the beginning of the year (FBS, 2019). Fuel and oil cost from FBS (2019) were halved due to using contractors and, in Years 1-3 machinery repair costs were £3000 below FBS as the tractor was under warranty and with a service plan. Except for potato contracting prices obtained from Nix, contracting charges were taken from the National Association of Agricultural Contractors (Redman 2019; NAAC, 2019). Wage costs for relief cattle shepherding and potato harvesting were sourced from Nix (Redman, 2019). Other fixed costs were assumed to be the same as FBS values per hectare, except for property repairs which was assumed to cost one third of FBS values due to the landlord being responsible for building maintenance (FBS, 2019).

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# **Appendixes**

# **Appendix 1: Images of Machinery Purchased**



Figure 1: John Deere 6130R Tractor (John Deere, 2020c)



Figure 2: Kramer Telehandler (Farm AutoTrader, 2020f)



Figure 3: Honda ATV (Farm AutoTrader, 2020g)



Figure 4: Amazone Fertiliser Spreader (Farm AutoTrader, 2020h)



Figure 5: Knight Sprayer (Farm AutoTrader, 2020c)



Figure 6: Bomford Hedgecutter (Farm AutoTrader, 2020b)



Figure 7: Griffiths Grain Trailer (Farm AutoTrader, 2020e)



Figure 8: Western Bale Trailer (Farm AutoTrader, 2020d)



Figure 9: Wiberg Cultivator (Farm AutoTrader, 2020a)

# **Appendix 2: Hire Purchase Quotation**

#### Figure 10: John Deere Tractor Hire Purchase Quotation (John Deere, 2020)



#### **New John Deere Tractors**

5 to 9 Series Tractors

1 + 2 Annual Payments @ 0% based on 50% RRP.

Program valid until

1 April 2020

#### FINANCE EXAMPLE

#### FINANCE PRODUCT

- Hire Purchase
- Finance Lease

#### FREQUENCY OF PAYMENT

- Monthly
- Quarterly
- Semi-Annually
- Annually

NET MACHINE PRICE

£70,000

DEPOSIT %

10%

YEARS

3

PAYMENTS IN ADVANCE

1

FOLLOWING PAYMENTS

35

OPERATING HOURS

750

# Finance Example

RATE (APR)

2.00% (2.08%)

DEPOSIT (IN £)

£7,000.00

ADVANCE PAYMENT (£)

£1,801.48

NUMBER OF FOLLOWING PAYMENTS

35

LOAN AMOUNT

£63,000.00

ADMINISTRATION FEE

£75.00

MONTHLY PAYMENT

£1,801.48

PER OPERATING HOUR

£28.82

The finance offer is available for business users in the UK only. The offer is available until further notice. Finance is limited to 50% of retail value. Rates/payments may vary to reflect changes in tax and cost of funds. VAT where applicable. An administration fee will be changed. We may withdraw this offer at any time. Finance subject to status. Terms and conditions apply.

Finance provided by John Deere Bank S.A., a bank registered in Luxembourg under no. 874106 supervised by the Commission de Surveillance du Secteur Financier, Luxembourg and trading as 'John Deere Financial' from its UK Branch at JDF House, Meteor Court, 43 Barnet Way, Barnwood, Gloucester, GL4 3GG, UK. For further information contact your local John Deere dealer.

# **Appendix 3: Electric Fencing**

#### Figure 11: Horse Livery Electric Fencing Quotation (Gallagher, 2020)

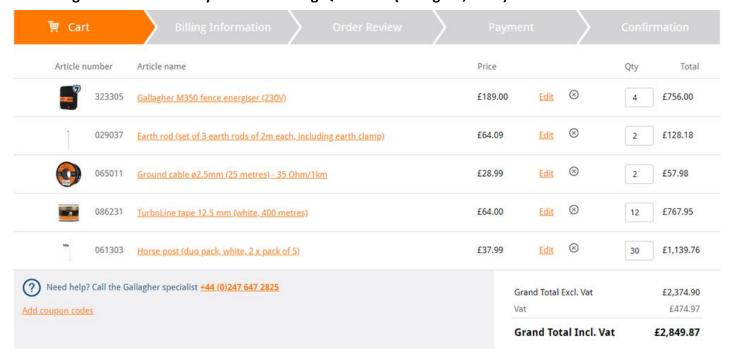


Figure 12: Heifer Rearing Electric Fencing Quotation (Gallagher, 2020)

