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Excerpt
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Introduction: agriculture and the late-medieval English economy

1.1 The seigniorial and non-seigniorial sectors

Between *c.* 1250 and *c.* 1450, for the first time in recorded English history, it becomes possible to reconstruct the development and performance of agriculture in some detail. Several different categories of producer – demesne lords, owners of rectorial glebe, franklins and proto-yeomen, substantial customary tenants, lesser customary tenants, and small freeholders – were involved in shaping the course of agricultural development over this eventful period, but it is the activities of the demesne lords that are the most copiously documented. For demesne farms alone detailed input and output data are available at the level of the individual production unit. It is the analysis of these data that forms the subject of this book. Not only do the insights thereby obtained have implications for agriculture in general but in an overwhelmingly agrarian age any verdict on the agricultural sector – limited and qualified though it may be – has important implications for how the medieval economy is viewed as a whole.

Notwithstanding their many obvious differences, seigniorial and non-seigniorial producers shared much in common. Most conspicuously, they shared a common technology. Indeed, much of the labour-force and know-how used in the management of demesnes came from the non-seigniorial sector with the result that the husbandry documented on demesnes was strongly influenced by local practice.[1] Shaping that practice were common environmental and commercial opportunities. It follows that where peasants led, lords are likely to have followed and *vice versa*. Nor were the stock and crops of lords any more immune to flood and drought or pests and pathogens than those of peasants. Analysis of production patterns and trends within the seigniorial sector can therefore reveal much about those within husbandry in general.[2] At the very least they provide a comparative basis against which the

[1] M. Mate, 'Medieval agrarian practices: the determining factors?', *AHR* 33 (1985).
[2] E.g. J. L. Langdon, *Horses, oxen and technological innovation* (Cambridge, 1986).

more fragmentary and indirect evidence available for the larger but far less well-documented peasant sector can be evaluated.

For a customary tenant serving as reeve, managing a demesne under the close supervision of a bailiff, steward or even the lord of the manor, with the annual requirement to render a detailed written account for scrutiny by auditors, was wholly different from running a family farm.[3] This was especially the case on demesnes belonging to perpetual institutions, with their exceptional continuity of management and administration and immunity to death, division, wardship and vacancy. Irrespective of ownership, the average demesne was several times larger than even the most substantial customary holding and usually formed one component within a greater federated estate system of production.[4] The superior scale of their activities and range of resources at their command meant that lords could afford to be far less risk averse than peasants. Thus, whereas small-scale subsistence producers may have lived in dread of dearth, large-scale seigniorial producers were far more likely to 'hang themselves on the expectation of plenty'.[5] The bad harvests that impoverished small-scale producers by suddenly transforming modest grain surpluses into large deficits simultaneously enriched large-scale producers who still had surpluses to sell and could profit greatly from the inflated prices.[6] Famine prices in 1316 and 1317, for instance, delivered bumper profits to many a demesne producer.[7]

Contrasting labour processes went hand in hand with the contrasting scales of seigniorial and peasant producers. Where peasants relied upon family augmented by hired labour, lords were wholly dependent upon a combination of customary and hired workers. For all the historical attention that it has attracted, customary labour was probably more irksome than it was important. The supply of labour services was never equal to the labour requirements of the seigniorial sector, especially on small lay manors and in areas of weak manorialisation.[8] On J. Hatcher's estimation, less than a third of villein house-

[3] This, no doubt, was why for thirty-eight years, until his death in 1349, the fellows of Merton College Oxford entrusted Robert Oldman with the office of reeve and, thus, responsibility for supervising the management of their demesne at Cuxham: P. D. A. Harvey, *A medieval Oxfordshire village* (London, 1965), pp. 64, 71–2.

[4] 'The large estates of the great secular or episcopal landowners . . . in the late thirteenth century were capitalist concerns: federated grain factories producing largely for cash': M. M. Postan, 'Revisions in economic history: IX. The fifteenth century', *Economic History Review* 9 (1939), 162.

[5] *Macbeth*, Act II, Scene III.

[6] M. Overton, *Agricultural revolution in England* (Cambridge, 1996), pp. 20–1.

[7] J. Z. Titow, 'Land and population on the bishop of Winchester's estates 1209–1350', PhD thesis, University of Cambridge (1962), pp. 9–10. The record prices also brought windfall profits to London cornmongers: B. M. S. Campbell, J. A. Galloway, D. J. Keene, and M. Murphy, *A medieval capital and its grain supply*, Historical Geography Research Series 30 (n.p., 1993), pp. 82–4.

[8] H. L. Gray, 'The commutation of villein services in England before the Black Death', *EHR* 29, 116 (1914), 625–56; E. A. Kosminsky, *Studies in the agrarian history of England in the thirteenth*

holds were still regularly performing week-works – the most burdensome of customary services – at the close of the thirteenth century, and performing them, presumably, indifferently.[9] The proportion of seigniorial production actually accounted for by labour services may consequently have been as little as 8 per cent.[10] It was as employers rather than coercers of labour that lords were, therefore, most significant. In fact, lords increasingly substituted hired for customary labour since it was better motivated and incurred lower supervision costs.[11] Harvest works, alone among customary services, tended to be retained to the bitter end since they helped guarantee an adequate workforce in the season of peak labour demand.[12]

For all its intrinsic interest and superior documentation, the seigniorial sector was always of lesser significance than the non-seigniorial sector.[13] Indeed, that minority status became more rather than less pronounced with the passage of time, since the majority 'peasant' sector possessed the more powerful dynamic. Until *c.* 1325 peasants were almost certainly far more active than lords in adding to the agricultural area. Indeed, from the mid-thirteenth century opportunities for extending the agricultural area in lowland demesne-farming contexts were fast running out.[14] Then, from the second quarter of the fourteenth century, tenants gained from the progressive transfer of land and capital from the seigniorial to the non-seigniorial sector via the piecemeal and wholesale leasing of demesne land, stock and buildings, until the point was eventually reached in the mid-fifteenth century when the bulk of all landlords were rentiers rather than direct producers.

1.2 The changing economic context of agricultural production

Over the long span of time from the resumption of direct demesne management in the early thirteenth century until its final demise two and a half centuries later the economic and institutional contexts of seigniorial production

century, trans. R. Kisch, ed. R. H. Hilton (Oxford, 1956), pp. 152–96; R. H. Britnell, 'Commerce and capitalism in late medieval England: problems of description and theory', *Journal of Historical Sociology* 6 (1993), 364.

9 J. Hatcher, 'English serfdom and villeinage: towards a reassessment', *PP* 90 (1981), 12. On the manors of Ramsey Abbey J. A. Raftis, *Peasant economic development within the English manorial system* (Stroud, 1997), p. 62, reckons 'that only some 10 per cent of the labour resources of the tenant were owed to demesne services'.

10 Estimated from Britnell, 'Commerce and capitalism', p. 374, n. 35.

11 D. Stone, 'The productivity of hired and customary labour: evidence from Wisbech Barton in the fourteenth century', *EcHR* 50 (1997), 640–56; R. H. Hilton, 'Peasant movements in England before 1381', *EcHR* 2 (1949), 117–36.

12 B. M. S. Campbell, 'Agricultural progress in medieval England: some evidence from eastern Norfolk', *EcHR* 36 (1983), 38–9.

13 Chapter 3, pp. 55–60.

14 After 1150 the total cultivated area on the estates of the bishops of Worcester grew by only 5–7 per cent: C. C. Dyer, *Lords and peasants in a changing society* (Cambridge, 1980), p. 96. The sown acreage of the Winchester estate grew by 8 per cent between 1209 and 1240, but registered little overall increase thereafter: Titow, 'Land and population', pp. 21–2.

changed significantly.[15] Trends in prices, wages and real wages encapsulate many of these changes and provide a securely documented and precisely calibrated chronology. Figure 1.01 is based on the composite price and wage indices constructed by D. L. Farmer, re-indexed on their respective means for the entire period 1208–1466.[16] It identifies four price-wage phases or eras: the first and longest stretching from the beginning of the thirteenth century until the Great European Famine of 1315–22; the second spanning the twenty-five-year interval that separated the Famine from the Black Death of 1348–9; the third occupying the three decades following the Black Death; and the fourth dating in effect from the Peasants' Revolt of 1381 and lasting until at least the middle of the fifteenth century.

During the first half of the thirteenth century prices and cash wages both registered an inflationary rise, which peaked in the famine year 1257–8. Up to that point real wages do not appear to have suffered any lasting erosion; thereafter they sustained a pronounced and lasting fall as prices moved decisively ahead of wages (Figure 1.01). By the mid-1270s real wages were 50 per cent lower than their level at the start of the century and they were to fluctuate around that same low level for the next fifty years. Years of abundant harvest, such as the late 1280s and early 1300s, brought some temporary recovery in real wages but these gains were invariably wiped out whenever harvests reverted to or sank below normal, as in the mid-1290s and most dramatically during the Great European Famine of 1315–22.[17] The climax of this price-driven divergence between prices and real wages came in 1316 when prices peaked at 150 per cent above and real wages plummeted to 75 per cent below their respective long-term averages.[18]

While a significant increase in the money supply undoubtedly stoked the sustained inflation which took place in both prices and cash wages over the course of the 'long' thirteenth century, it is generally believed that population growth was primarily responsible for the fact that prices rose faster and further than wages from mid-century.[19] These circumstances naturally favoured those able to maintain their economic strength and disadvantaged those who could not. Lords, in particular, stood to gain significantly from the rising prices

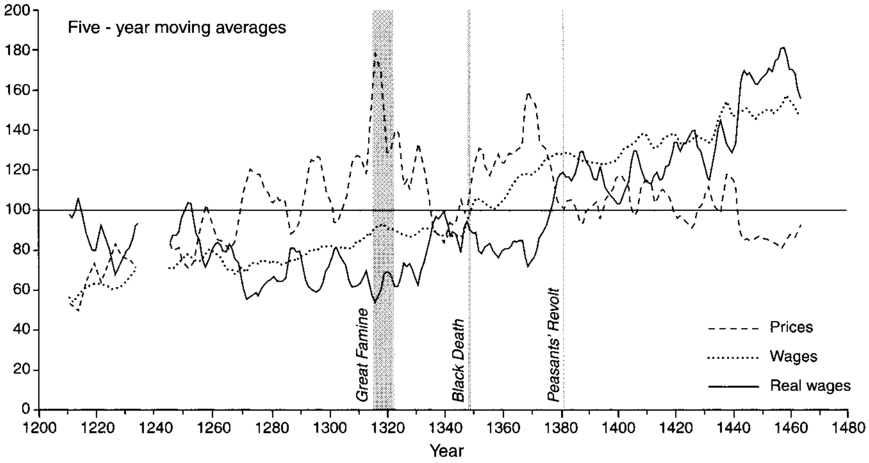
[15] P. D. A. Harvey, 'The Pipe Rolls and the adoption of demesne farming in England', *EcHR* 27 (1974).

[16] The prices are those of a basket of consumables comprising 4 quarters of barley, 2 quarters of peas, a tenth of an ox, half a wether, half a pig, a quarter of a wey of cheese, a tenth of a quarter of salt, and one stone of wool. The wages are those of both agricultural and building workers: namely, the piece rates for threshing, winnowing, reaping and binding (plus mowing and spreading post-1349), and the day rates for a carpenter, a thatcher and his mate, and a slater/tiler and his mate. Real wages have been calculated by dividing wages by prices.

[17] For a case study of the 1290s famine see P. R. Schofield, 'Dearth, debt and the local land market in a late thirteenth-century village community', *AHR* 45 (1997).

[18] D. L. Farmer, 'Prices and wages', in Hallam (ed.), *AHEW*, vol. II, p. 776.

[19] N. J. Mayhew, 'Modelling medieval monetisation', in R. H. Britnell and B. M. S. Campbell (eds.), *A commercialising economy* (Manchester, 1995), p. 76; R. H. Britnell, *The commercialisation of English society 1000–1500* (Cambridge, 1993), pp. 102–5.



Note:			
	Prices	=	indexed price of a composite basket of consumables
	Wages	=	indexed composite wage of agricultural and building workers
	Real wages	=	indexed (composite wages ÷ composite prices)
	100	=	variable mean for the period 1208 - 1466

Fig. 1.01. Prices, wages, and real wages in England, 1208–1466 (five-year moving averages) (source: Farmer, 'Prices and wages', pp. 776–7; Farmer, 'Prices and wages, 1350–1500', pp. 520–3).

owing to their inherent tendency to produce in excess of their own consumption requirements. Since they were heavily dependent upon hired workers, they also reaped economic benefit from the rising supply and falling unit cost of labour. Other things being equal, therefore, there were strong incentives for them to expand and intensify their production to the extent that the turn of the thirteenth and fourteenth centuries has sometimes been represented as a time of seigniorial 'high farming', with high inputs being used to achieve high outputs.[20] In contrast, those who sold their labour and bought their food were increasingly squeezed by their weakening purchasing power.[21] Demand, although expanding, became increasingly polarised, especially at times of dearth and famine, as a growing proportion of the population traded down to the cheapest affordable foodstuffs.[22] In effect, that meant a dietary shift from

[20] E.g. E. Miller and J. Hatcher, *Medieval England: rural society and economic change 1086–1348* (London, 1978), pp. 213–24.

[21] A. N. May, 'An index of thirteenth-century peasant impoverishment? Manor court fines', *EcHR* 26 (1973), 389–402. At Halesowen in Worcestershire the poorest socio-economic groups experienced a failure of biological reproduction: Z. Razi, *Life, marriage and death in a medieval parish* (Cambridge, 1980), pp. 94–7.

[22] William Langland describes the foodstuffs that the poor had to make shift with at times of famine: *Visions from Piers Plowman taken from the poem of William Langland*, trans. N. Coghill (London, 1949), pp. 53–4. See also R. W. Frank Jr, 'The "hungry gap", crop failure, and famine: the fourteenth-century agricultural crisis and *Piers Plowman*', in D. Sweeney (ed.), *Agriculture in the Middle Ages* (Philadelphia, 1995), pp. 227–43.

pastoral to arable products and a reduced *per capita* consumption of refined bread and ale. These changes in the relative composition of demand favoured those producers with a strong comparative advantage in arable production.

The Great European Famine inflicted a major demographic shock and in its aftermath prices and wages began to converge.[23] That convergence was most marked in the 1330s, when, for a time, real wages recovered almost to the level of the mid-thirteenth century (Figure 1.01). Several factors were at work here, notably the reduction in population, the tardiness of any demographic recovery, a fortuitous run of good harvests, and a pronounced decrease in the amount of currency in circulation.[24] A slump in the real value of rental property in London's Cheapside demonstrates that the urban and commercial sectors were also in difficulties.[25] Cheapside was the commercial heart of London, as London was of the kingdom: if its pulse was beating slower the nation's commercial prosperity was probably on the wane. In the late 1330s and early 1340s acute bullion famine precipitated the most pronounced and prolonged fall in prices since the onset of inflation well over a century earlier. It was this that delivered windfall gains to wage earners, since wage rates held more or less steady at their customary levels. For smallholders, too, the abundant harvests of the 1330s provided an opportunity to recoup the worst of the losses of land and stock which they had incurred during the famine years.[26] These circumstances were, however, far less auspicious for landlords. Faced by a general recession in trade and with their profit margins squeezed by massively deflated prices, many began to question the wisdom of a policy of direct demesne management.[27] Poor harvests in the mid-1340s nevertheless brought the return of higher prices and for a brief while this must have allayed the worst of their fears, until the outbreak of the Black Death in July 1348 quashed the prospect of any return to the previous economic *status quo*.

Whereas the Great European Famine culled the population by perhaps 10–15 per cent, the mortality precipitated by the Black Death between July

[23] I. Kershaw, 'The Great Famine and agrarian crisis in England 1315–22', *PP* 59 (1973); J. D. Chambers, *Population, economy, and society in pre-industrial England* (London, 1972), p. 25; D. B. Grigg, 'Western Europe in the thirteenth and fourteenth centuries: a case of overpopulation?', in Grigg, *Population growth and agrarian change* (Cambridge, 1980), pp. 64–82; W. C. Jordan, *The Great Famine* (Princeton, 1996).

[24] Razi, *Life, marriage and death*, pp. 27–98; B. M. S. Campbell, 'Population pressure, inheritance and the land market in a fourteenth-century peasant community', in R. M. Smith (ed.), *Land, kinship and life-cycle* (Cambridge, 1984), pp. 95–9; L. R. Poos, 'The rural population of Essex in the later Middle Ages', *EcHR* 38 (1985), 521–4; D. G. Watts, 'A model for the early fourteenth century', *EcHR* 20 (1967), 546–7; N. J. Mayhew, 'Numismatic evidence and falling prices in the fourteenth century', *EcHR* 27 (1974).

[25] D. J. Keene, *Cheapside before the Great Fire* (London, 1985), pp. 19–20.

[26] Campbell, 'Population pressure', pp. 115–18.

[27] D. H. Fischer, *The great wave: price revolutions and the rhythm of history* (Oxford, 1996), pp. 30–45; Farmer, 'Prices and wages', pp. 720, 728; Chapter 5, pp. 233–4.

1348 and December 1349 was two to three times greater.[28] Depending upon the size of the total population this amounted to a death toll of at least 1¼ million and as such constitutes the worst crisis of public health in recorded English history.[29] Nor, once the immediate epidemic had passed, was there much prospect of any sustained demographic recovery. Recurrent outbreaks of plague in 1361, 1369, and 1375 continued to drive the population down while changing age structures and nuptiality patterns militated against any compensatory rise in fertility.[30] The massive demographic haemorrhage was all the more profound in its economic impact because it was a Europe-wide phenomenon. With far fewer people to feed, clothe and fuel this amounted to a demand shock of unequalled scale and immediacy and as such presented the agricultural sector with massive and wholly unanticipated problems of readjustment which it took the next thirty years to work out.[31]

The magnitude of the initial demand shock in 1348–9 is manifest in an unprecedented 45 per cent collapse in prices and 24 per cent rise in cash wages, which, together, temporarily sent real wages soaring.[32] Workers were nevertheless unable to maintain this windfall advantage. Adverse weather and bad harvests in the 1350s coupled with the massive *per capita* increase in currency brought about by the great reduction in population re-stoked inflation, returning prices to their level at the opening of the fourteenth century.[33] Worse was to follow; in 1369–70 the combination of dearth and plague pushed prices up to levels exceeded only in the grimmest years of the Great European Famine (Figure 1.01). Meanwhile, government curbs upon increases in cash wages – hurriedly imposed in 1349 and confirmed by statute as soon as the immediate

[28] R. M. Smith, 'Demographic developments in rural England, 1300–48: a survey', in B. M. S. Campbell (ed.), *Before the Black Death* (Manchester, 1991), pp. 25–78; Jordan, *The Great Famine*, pp. 118–20.

[29] On the impact of plague see P. Ziegler, *The Black Death* (London, 1969), pp. 224–31; J. Hatcher, *Plague, population and the English economy 1348–1530* (London, 1977), pp. 21–5. G. Twigg, *The Black Death* (London, 1984), pp. 70–1, plumps for a lower mortality rate of 20 per cent, while J. F. D. Shrewsbury, *A history of bubonic plague in the British Isles* (Cambridge, 1970), p. 123, argues that 'In all probability the national death-toll from "The Great Pestilence" did not exceed one-twentieth of that population [of 4 million]'. Neither of these lower estimates has found much favour with historians.

[30] Razi, *Life, marriage and death*, pp. 114–51.

[31] The much-discussed late-seventeenth-century demand shift (E. A. Wrigley and R. S. Schofield, *The population history of England, 1541–1871* (Cambridge, 1989), pp. 207–15) was much smaller: see E. L. Jones, 'Agriculture and economic growth in England, 1660–1750: agricultural change', *JEH* 25 (1965), 1–18; A. Kussmaul, 'Agrarian change in seventeenth-century England: the economic historian as paleontologist', *JEH* 45 (1985), 1–30; H. J. Habakkuk, 'The agrarian history of England and Wales: regional farming systems and agrarian change, 1640–1750', *EcHR* 40 (1987), 281–96. Not until the late-nineteenth-century revolution in world food markets was a comparable shock experienced, although on that occasion its origin lay with supply rather than demand.

[32] Farmer, 'Prices and wages', p. 777. Prices and wages were the subjects of much contemporary comment: *The Black Death*, trans. and ed. R. Horrox (Manchester, 1994), pp. 78–9.

[33] D. L. Farmer, 'Prices and wages, 1350–1500', in Miller (ed.), *AHEW*, vol. III, p. 441.

crisis had passed in 1351 – proved remarkably effective.[34] Paradoxically, therefore, prices again pulled ahead of cash wages with the result that for two decades after the Black Death real wages remained at or below their immediate pre-plague level. Only improved food liveries provided any compensation.[35] For large-scale producers hiring labour in order to produce surpluses for sale and consumption this was to be an Indian summer conveying a false illusion that nothing fundamentally had changed.

Such an artificial *status quo* could not last indefinitely. With each successive plague outbreak the random culling of the population further undermined the established socio-economic fabric of rural life.[36] As the population dwindled demand contracted and it was only a matter of time before this translated itself into falling commodity prices. Heavy export duties and continuing government interference ensured that the wool export trade declined and ceased to be the great foreign-exchange earner it had once been; nor did cloth exports yet provide adequate compensation.[37] Bullion steadily seeped out of the economy, aided by high crown military expenditure overseas as the Hundred Years War with France drew expensively but inconclusively on. It therefore wanted only the bumper harvest of 1376 to send grain prices tumbling down, inaugurating an era of price deflation which was to persist for the next 150 years and return prices in the 1440s, 1450s and 1460s to a level not much above that of the first quarter of the thirteenth century (Figure 1.01).[38]

Nor could the Statute of Labourers restrain forever the mounting upward pressure on wages. The plague mortality of 1375 intensified that pressure and the price collapse of 1376 raised it further, on account of the higher material expectations that it engendered as cheap foodstuffs brought windfall gains in living standards.[39] Real wages improved more dramatically during the 1370s than during any other decade on record and for the first time rose significantly above their long-term average (Figure 1.01). The more that the lot of wage earners improved the more that popular discontent with the government's policy of wage restraint and the justices of labourers who enforced it mounted.[40] Dissatisfaction surfaced in the Peasants' Revolt of 1381.[41]

34 Farmer, 'Prices and wages, 1350–1500', pp. 483–90.
35 E.g. C. C. Dyer, 'Changes in diet in the late Middle Ages: the case of harvest workers', *AHR* 36 (1988).
36 For a case study of a widespread phenomenon see J. A. Raftis, 'Changes in an English village after the Black Death', *Mediaeval Studies* 29 (1967), 158–77.
37 E. M. Carus-Wilson and O. Coleman, *England's export trade, 1275–1547* (Oxford, 1963), pp. 122–3, 138; J. L. Bolton, *The medieval English economy, 1150–1500* (London, 1980), pp. 292–3.
38 Farmer, 'Prices and wages, 1350–1500', pp. 439–43.
39 Farmer, 'Prices and wages, 1350–1500', pp. 437, 520–1.
40 E. B. Fryde and N. Fryde, 'Peasant rebellion and peasant discontents', in Miller (ed.), *AHEW*, vol. III, pp. 753–60.
41 *The Peasants' Revolt of 1381*, ed. R. B. Dobson, 2nd edition (London, 1983); C. C. Dyer, 'The social and economic background to the rural revolt of 1381', in R. H. Hilton and T. H. Aston (eds.), *The English rising of 1381* (Cambridge, 1984), pp. 9–24.

Thenceforth the Statute of Labourers ceased to be enforceable and the door was opened for wages to find their natural market level.[42]

By the final quarter of the fourteenth century the transition to the new post-plague *status quo* had been more or less completed. In the process England had been transformed from a populous to an essentially under-populated country, albeit with the legacy of an extensive agricultural area bequeathed by pre-plague colonisation and reclamation.[43] The relative scarcity of people and surfeit of land confronted the agricultural sector with an entirely new set of challenges, as wages drifted steadily upwards and prices downwards. Slack demand and an inherent tendency towards over-production kept the prices of agricultural commodities low, depressed land values, and discouraged investment, even though interest rates had fallen significantly during the half-century which followed the plague.[44] Vested institutional and proprietorial interests meant that the wholesale withdrawal of land from cultivation took time to gather momentum, delaying the establishment of a more rational economic use of the land and raising the social costs of doing so.[45] Eventually, entire arable-farming villages would be replaced with cattle and sheep ranches, with the structure and strength of lordship often determining whether or not a settlement survived this difficult period.[46]

As labour became ever scarcer and real wages rose the differential steadily narrowed between the wages of unskilled workers and those of skilled craftsmen and officials. As a result the more labour-intensive forms of husbandry rapidly became uneconomic.[47] The disproportionate rise in the remuneration of manual workers may also have been partly in recompense for the improved work performance that resulted from higher standards of nutrition.[48] The army of malnourished and impoverished landless and semi-landless folk which had been so omnipresent before the plague was now no more, so much so that finding and recruiting labour was increasingly difficult and expensive.[49] For lords this problem was exacerbated by the decay of serfdom: insofar as

42 Farmer, 'Prices and wages, 1350–1500', pp. 488–94. 43 Hatcher, *Plague, population*.
44 G. Clark, 'The cost of capital and medieval agricultural technique', *Explorations in Economic History* 25 (1988), 265–94.
45 C. C. Dyer, *Warwickshire farming 1349–c. 1520* (Oxford, 1981), pp. 9–12; E. King, 'The occupation of the land: the east midlands', in Miller (ed.), *AHEW*, vol. III, pp. 73–6; H. S. A. Fox, 'The occupation of the land: Devon and Cornwall', in Miller (ed.), *AHEW*, vol. III, 152–71.
46 M. W. Beresford, *The lost villages of England* (Lutterworth, 1963), pp. 177–216.
47 Farmer, 'Prices and wages, 1350–1500', pp. 478–9; B. M. S. Campbell, 'A fair field once full of folk: agrarian change in an era of population decline, 1348–1500', *AHR* 41 (1993), 63; Campbell, 'Agricultural progress', pp. 38–9; C. Thornton, 'The determinants of land productivity on the bishop of Winchester's demesne of Rimpton, 1208 to 1403', in B. M. S. Campbell and M. Overton (eds.), *Land, labour and livestock* (Manchester, 1991), pp. 204–7; M. Mate, 'Farming practice and techniques: Kent and Sussex', in Miller (ed.), *AHEW*, vol. III, pp. 268–71; B. M. S. Campbell, K. C. Bartley, and J. P. Power, 'The demesne-farming systems of post Black Death England: a classification', *AHR* 44 (1996), 177–8.
48 Dyer, 'Changes in diet'. 49 *Black Death*, pp. 318–20.

customary labour had hitherto subsidised production on certain demesnes, that subsidy was effectively withdrawn.[50] The less enlightened lords were often simply deserted by their tenants as migration increased; others sensibly granted or sold their tenants their freedom.[51] How this worked itself out on the ground depended very much upon the structure and strength of lordship with the result that the decay of serfdom could proceed at very different rates and have entirely different outcomes on neighbouring manors. In serfdom's place lords became even more dependent upon the hire of farm servants by the year and casual labourers by the task.

Squeezed by falling prices and rising labour costs, demesne lords found themselves at an increasing disadvantage relative to middling-sized farms worked largely by family labour. Generally, it was farms such as these, with smaller overheads and lower unit costs, which fared best. The temptation for lords to convert their demesnes into leasehold farms therefore grew. In contrast to the heady high-farming days before the plague, getting the land to pay now depended more upon minimising costs than maximising revenues. The land's physical productivity was of less moment than whether it could be got to yield a profit. Here, grassland farming offered cost advantages over arable husbandry because it required only a fifth of the labour force per unit area at a time when labour was becoming the scarcest and most expensive of the factors of production. This swing from corn to horn was further encouraged by higher *per capita* consumption of pastoral products as average purchasing power rose.

There was naturally a strong spatial dimension to all these trends since no seigniorial producer enjoyed an equal comparative advantage in all branches of production.[52] Producers with a strong comparative advantage in arable production tended to fare better than average before the Black Death and worse than average thereafter. Whether or not soils were light or heavy could make all the difference at times when the key to success lay in keeping costs down. Not all soils converted well to grass and in areas of closely regulated commonfields there were often institutional obstacles to the withdrawal of land from tillage. Proximity to concentrated urban demand was always an advantage. Change therefore was always environmentally, institutionally, and locationally specific, with the relative importance of environmental, institutional, and commercial influences itself varying over time.

1.3 Strategies for raising (and reducing) agricultural output

The repertoire of ways in which medieval producers could respond to the expansion and contraction of demand was wider than has often been cred-

[50] R. H. Hilton, *The decline of serfdom in medieval England*, 2nd edition (London and Basingstoke, 1983).
[51] J. A. Raftis, *Tenure and mobility* (Toronto, 1964), pp. 153–66; L. R. Poos, *A rural society after the Black Death* (Cambridge, 1991), pp. 159–79; *Black Death*, pp. 326–31; Raftis, *Peasant economic development*, pp. 99–117.
[52] Campbell and others, 'Demesne-farming'.