PART E : EXMOOR AND THE QUANTOCKS

12.0 # DESCRIPTION OF FARMING IN THE EXMOOR AND QUANTOCKS NATURAL AREA

Physical Characteristics

12.1 The geology of the NA is based on a combination of mudstones, siltstones, sandstones and slates. This combination has resulted in a range of soil types[31]. To the west the main soils are the **Denbigh 1** and **Manod** associations, which are well drained fine loamy or silty soils suitable for stock rearing in the uplands, with dairying and some cereals in the lowlands. Towards the centre of the NA Manod soils are still common, together with the loamy, permeable upland soils of the **Hafren** and **Lydcott** associations, both suitable for rough grazing and for stock rearing on improved land. To the east, Denbigh 1 soils are again common, while, on the Quantocks, Manod soils are common, together with **Rivington** soils (well drained loamy soils suitable for dairying and arable) and **Larkbarrow** soils (very acid soils characterised by heathland).

12.2 The Agricultural Land Classification of the Exmoor and Quantocks Natural Area reflects the moderate to poor quality of its farmland; 33% is classified as Grade 3 land (defined as land with moderate limitations on cropping), with a further 34% as Grade 4 land (land with severe limitations on cropping) and 19% as Grade 5 land (land with very severe limitations). Other land makes up only 14% of the NA. No data is available for the NA on the areas of, and breakdown between, the sub-grades of Grade 3, except for specific sites within the NA which may have been subject to detailed survey. Overall the land quality is poor in comparison to the national average.

Agricultural Land-Use

12.3 In 1994:

- 63% (69,017ha) of the NA's farmland was grassland older than 5 years;
- 14% (15,161ha) was rough grazing;
- 10% (10,937ha) was grassland less than 5 years old;
- 9% (9,597ha) was arable, including set-aside;
- other land-use types together made up 4% of agricultural land (4,446ha).

Farm Types

12.4 Out of 1,860 holdings in the NA in 1994:

- 55% were part-time;
- 32% were full-time cattle and sheep farms;
- 10% were full-time dairy farms;
- 3% were other full-time farms.

The "other" farm types include pig and poultry, cropping, horticultural and mixed farms. From cross reference, part-time farms comprise a mixture of all farm types, including cattle and sheep (LFA and non-LFA):

- most dairy farms are full-time;
- about one third (20) cereal and cropping farms are part-time;
- some 45% (485) of cattle and sheep farms are part-time;
- two thirds (20) of pig and poultry farms are part-time;
- most mixed farms (65/70) are part-time;
- all the "other types" are part-time.

Farm Tenure

12.5 In 1994 75% (82,407ha) of the NA's agricultural area was owner-occupied and 25% (26,751ha) rented. The proportion of owner-occupied land is greater than the 1994 national average for England of 64% owner-occupied and 36% rented.

Farm and Enterprise Size

12.6 In 1994, 65% of farms in the NA were under 50ha, and 87% under 100ha.

Table 12.1 : Farm Sizes

Farm Size Category	Number of farms in each category as a percentage of all farms
Less than 5ha	16%
5ha and <20ha	26%
20ha and <50ha	23%
50ha and <100ha	23%
100ha and greater	13%

12.7 Farm labour inputs (measured by SMDs) provide valuable information about the size and intensity of farming enterprises. A full time farm worker is usually assumed to be able to provide labour worth between 250-300 SMDs annually. This figure may be used as a general indication of the number of full-time workers needed by an enterprise. However, the figure should not be interpreted as a strict rule. There may be some farms with labour requirements of less than 250 SMDs, but due to their individual circumstances are still able to employ a full-time farmer or worker. Likewise, some farms with large labour requirements may employ relatively few persons, relying on overtime or increased mechanisation for operations to be completed.

12.8 The SMD data suggests that 55% of farms in the NA (1,015 farms) were too small to provide full-time employment, which is confirmed by the analysis of farm types in paragraph 5.4, 55% (1,015 farms) of which were part-time. Most of the remaining farms have a labour input ranging from 1-3 full-time workers (see below). It is possible that this is met by a number of part-time workers, but the data does not enable such accurate analysis.

Table 12.2 : Enterprise Size by SMD

Holding Size by SMDs	Approx. No. Of Workers	Percentage
0-249 SMD	0-1	55%
250-499 SMD	1-2	16%
500-999 SMD	2-3	20%
1000-1999 SMD	3-7	8%
2000+ SMD	>7	2%

Labour Force

12.9 The NA's agricultural workforce totalled 3,900 people in 1994. 59% of this workforce were full-time workers, 28% part-time workers and 13% casual workers (including contractors). The 1995 Census Guidance Notes define a full-time worker as one whose main occupation is farming and who devotes about 40 hours a week to running the holding (59%). Casual workers are defined as those who are not regular workers, ie not employed on the holding for some part of each month throughout the year (13%). Part-time workers are those workers who are not full-time workers or casual workers (28%).

Summary of Farm Types in the Exmoor and Quantocks Natural Area

12.10 From the above analysis it is possible to draw a number of general conclusions about the main farm types in the NA:

1) Cattle and sheep farms are the main farm type in the NA, accounting for 58% of all farm types. Almost half of these farms are part-time in nature;

2) There is a small number of dairy farms throughout the NA. Dairy farms dominate the better quality lands in the west and east of the NA, such as around Ilfracombe and The Quantocks;

3) A large number of farms are part-time. Part-time farms are numerically greatest in the cattle and sheep, and "other" sections, although cover farms of all farming type;

4) Three quarters of farms are owner-occupied;

5) The majority of full-time farms have a labour requirement of between 1-3 workers.

13.0 # CHANGES IN FARMING IN THE NATURAL AREA, 1975 TO 1994

13.1 This section analyses the changes in agriculture over the period 1975-1994, looking firstly at the main structural changes to the industry within the NA, followed by the changes within farming enterprises. The causes of these changes and their effects on nature conservation are also described.

13.2 In reading our findings it is important to recognise that the parish census data does not provide a comprehensive guide to changes in farming. For example, improved and unimproved grassland may both be categorised as grassland older than 5 years, despite their very different nature conservation interest. The Census also excludes common land, which covers large areas of the NA. Nevertheless, the census data still provides a general indication of the changes that have taken place.

Summary of the Principal Structural Changes Between 1975 and 1994

13.3 Land Use. Principal changes are as follows:

- The total agricultural area within the NA has increased by 5005ha (5%) over twenty years. The Countryside Commission[32] estimate that in the Exmoor National Park (ie part of the NA) between the 1970's and 1980's the following changes took place, based on the Park area of 692.8sq km (the NA is twice the size at 1335km^2):

Table 13.1 : Changes In Net Land Use

Increases	Area (km^2)	Decreases	Area (km^2)
Cultivated land and improved pasture	+ 12.9	Upland Heath	- 5.3
		Other woodland	- 5.3
Coniferous Forest	+ 6.3	Moor and rough pasture	- 4.7
Development	+ 0.2		
Open Water	+ 1.6	Bracken	- 4.6
Net change	+ 21.0	Net change	- 19.9
Overall change	+ 1.1		

Within these global figures, the Commission estimate an increase of 11.2km^2 of cultivated land gained from improved pasture, with 5.3km^2 of upland heath lost to heather mosaics and grass moor and rough pasture losses of 4.7km^2 to improved pasture. There was much greater movement into and out of different land types over the period, the net figures reflecting only a small portion of the changes in the period:

- Grassland older than 5 years has increased by almost 10,000ha (17%), from 59,191ha to 69,017ha. This increase would appear to be partly due to the 33% decline of grassland less than 5 years old, which fell from 16,208ha to 10,937ha. Short term grassland has often been associated with mixed farms (due to grass leys planted between arable crops) and with dairy farms (due to short term intensive rye grass leys), both of which have declined in number in the NA;

- Rough grazing fell by 4.2% between 1975-1994, from 15,821ha to 15,161ha. This loss is likely to have been through agricultural improvement to grassland or to farm woodland planting, which increased by 113% from 1,592ha to 3,384ha. However, it is interesting to note that despite the overall decline, rough grazing actually increased to 15,161ha by 1994 after having an area of 13,233ha in 1984. It is possible that this may be due to the impact of conservation schemes eg ESA and CS[33]. It may also be because land improved with government grants in the 1970's and early 1980's may have become too expensive to maintain, resulting in its reversion to rough grazing. Additionally, as this accounts for almost half of the increase in agricultural land over the period, it may be land lost to ungrazed heath and moor;

- The area of arable land fell by 12%, from 10,863ha to 9,597ha. This decline may be due to the marginal nature of arable land in the NA and the reversion to grassland encouraged by conservation schemes.

13.4 Farm Holdings. The total number of holdings in the NA fell from 1,686 in 1975 to 1,656 in 1984, then increased to 1,860 holdings by 1994. The overall increase has been 10% and there has been a swing towards part-time holdings:

- full-time holdings fell by 19% from 1,042 to 845 farms, a fall of 197;

- part-time holdings increased by 58% from 644 to 1,015 farms, an increase of 371.

13.5 Farm Size. There has been an increase in the number of small farms. For example, farms less than 5ha increased by 59%, from 192 farms to 305 farms, while farms between 5ha-<20ha have also increased by 33% (see **Table 13.2**). This increase in small farms suggests an increase in the number of part-time and "hobby" farms. In contrast, the total number of medium size farms between 20ha-<100ha has fallen by 7%, with the 20ha-<50ha category falling the most sharply by 12%. The movement towards fewer medium sized farms may be due to economies of scale, coupled with the trend of lotting farms on sale to maximise capital values. Such factors may conversely be behind the small 3% increase in the number of farms of 100ha or more, with lotted land either farmed as a part-time unit (hence increase in their number) or amalgamated with other land to create larger units.

Table 13.2 : Farm Size Changes

Size (ha)	1975	1984	1994	% Change 1975-1994
<5	192	176	305	+59%
5-<20	362	396	480	+33%
20-<50	477	433	420	-12%
50-<100	427	406	420	-2%
100+	228	245	235	+3%
Total	**1,686**	**1,656**	**1,860**	**+10%**

13.6 Employment. The total agricultural workforce increased by 18% between 1975-1994 to 3900 people, although the net full-time workforce increased by just 1%. Within the full-time workforce:

- full-time spouses and family workers increased by 450% from 122 to 547;
- full-time farmers fell by 11%, from 1,419 to 1,264; and
- full-time hired workers fell by 33%, from 738 to 492.

Most of the increase in the total workforce is due to part-time workers (55% - 692 to 1,072), and casual workers (63% - 323 to 525). The increase in part-time workers may be a reflection of the pressures to reduce labour, together with the increase in part-time holdings, and increased use of part-time farming labour.

13.7 Labour Inputs. As with the Greater Cotswolds, there was a sharp decline in the number of farms with a labour requirement of more than 3 workers, particularly in the decade 1975-1984. This may reflect increased mechanisation and less intensive labour practices (eg, increased use of vehicles, milking parlour advances, tractor power increases etc.).

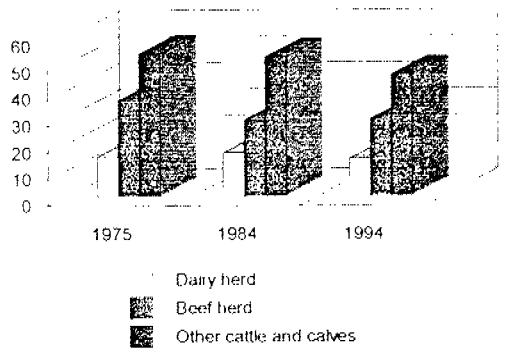
13.8 Tenure. The area of rented land fell by 22% from 34,355ha to 26,751ha, including seasonally let land, probably due to tenancy laws and inheritance tax rules which discouraged landlords from letting land. It is too early to assess whether the new Farm Business Tenancies (introduced in September 1995) and the current 100% inheritance tax relief on let land will reverse the decline of the tenanted sector. Successive generations may have been forced to work on the family farm due to the difficulty in getting their own holding, which may also have resulted in hired workers being laid off on the family farm to accommodate them; and is reflected in the increased number of family workers in the NA.

Summary of Principal Changes to Farm Types

13.9 Cattle and Sheep Farms. Cattle and sheep farms remain the most common full-time farm type in the NA, despite falling in number from 650 farms to 595 farms in 1994. This fall is probably due to the economic difficulties facing farming. However, in 1984 the number of stock farms had actually fallen lower to 544, only to increase in number over the following 10 years. This increase would appear to be due to farms switching away from other enterprises such as dairying and mixed farming.

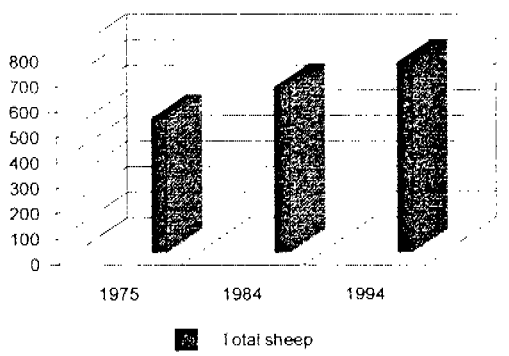
13.10 There has also been a 7% decrease in the number of beef suckler cows in the NA, from 20,877 cows to 19,350 cows, while the number of other cattle older than 1 year has fallen by 14%, from 21,045 to 18,130. This decrease in beef cattle numbers may be due to the national decline in beef consumption, the impact of BSE and the fall in the number of stock farms in the NA. There may be other, not discernible factors, such as farmer age.

Figure 13.3 : Changes In Cattle Numbers (in thousands)



13.11 Total sheep numbers have risen by 42%, from 530,190 to 750,206. This increase may have been encouraged by subsidies paid on a headage basis, improved market conditions for lamb and the smaller capital investment associated with sheep (compared to cattle). Improvement of agricultural land, the increasing use of winter housing, more away-wintering and higher lambing rates will also have led to the increased numbers. Lambs per ewe increased from 1 to 1.1 between 1975-1994, a lambing rate increase of 10%, based on the number on the farms at the June Census date.

Figure 13.4 : Sheep Number Changes (in thousands)



13.12 Dairy Farms. The number of dairy farms fell by 34%, from 273 farms to 180 farms, with dairy cow numbers falling by 6%, from 15,180 cows to 14,213. This decline may be due to the financial pressures on smaller dairy units, such as the imposition of milk quota in 1984 and the high capital costs required for buildings (for which most grant aid has ceased), parlours and pollution control equipment. As noted earlier, those farms which left dairying may have become cattle and sheep farms, due to the lower capital investment required for these enterprises. However, the herd size on the remaining farms would appear to have increased. In 1975 there was an average of 56 dairy cows/farm, which by 1994 had increased to 79 cows/farm, an increase of 41% in average herd size. This would appear to suggest that at least some dairy farms have intensified their activities.

13.13 Part-time Farms. The 58% increase in the number of part-time farms in the NA has been noted earlier and they now make up 48% of farms. The increase may be the result of some farmers having to supplement their income with off-farm employment. It may also be a consequence of an increase in hobby farms, as those with urban based employment move into rural areas.

Effects on Nature Conservation

13.14 The changes to agriculture in the NA over the last 20 years will have had a number of direct and indirect impacts on nature conservation.

13.15 Direct Effects. These will include:

- *Enclosing of heath and moor.* One of the most significant impacts is likely to come from the increase in the area of farmed land by 5000ha (5%). This land appears (from the analysis) most likely to be in grassland, although it is not possible to categorise the farming enterprises occupying the land. It is considered most likely to be cattle and sheep, on full or part-time holdings.

  Numerous earlier studies have looked at this problem. Lord Porchester reported in 1977[34] the average rate of moorland conversion between 1947 and 1976 as 128ha per annum across Exmoor. This rate was reported to have slowed by the mid 1980's[35] but in their study, ITE noted huge increases in the losses in the years after the UK joined the EEC. They drew on earlier studies of a sample of farms which confirmed the increasing losses over the period 1947-1976[36]. As noted by the Countryside Commission (1991), there are wide fluctuations within and between land use types which cannot be identifed from the bald data;

- *Changes in Grazing Management.* Miller et al (1984) reported difficulties in recording an increase in seasonal grazing intensification. They concluded that the effects of grazing pressure varies very widely across a moor, dependant upon vegetation cover, with increased grazing generally leading to heather losses. If grazed by sheep, there may be knock-on effects of increased bracken and low-lying gorse invasion. The statistics do not permit identification of trends in, for example, increased use of continental (larger) sheep breeds, earlier lambing (and therefore increased grazing earlier in the season), increased winter feeding on the hill, and localised increased grazing pressure. Changes in common grazing and bracken burning are also having effects[17];

- *Woodland Planting.* The planting of 1792ha of farm woodland, from 1,592ha to 3,384ha, may have benefitted wildlife, providing the sites for the new planting were not valuable habitats beforehand and the new woodlands receive sympathetic management. However, farm woodlands still only cover 3% of the NA. For wildlife benefit, the woodlands should be broadleaved. The change over the period has been steady. The Countryside Commission (1991) record that within the National Park part of the NA, there was a gain of 7.3sq km of non-coniferous woodland in the 1970's - 1980's period, counterbalanced by a 12.6 sq km loss. In recent years, farm woodland planting is likely to have been to broadleaf or mixed stands due to grant aid encouragement;

- *Changes to land use.* The increase in the area of grassland older than 5 years may have been partly due to the improvement of rough grazing (bracken and grass moor), some of which may have included valuable moorland or heathland. However, the subsequent increase in the area of rough grazing since 1984 suggests some previously improved land may be returning to rough grazing, perhaps due to economic difficulties in maintaining improved land or due to the impact of conservation schemes. The decline in the area of short term grassland may also suggest that on some farms grassland is being used less intensively. The Countryside Commission (1991) note the changes between the enclosed and unclosed farmland;

- *Changes to cattle and sheep farms.* The fall in beef cattle numbers may have mixed implications for nature conservation; on some farms there may be less grazing pressure on grassland, while on others undergrazing may result in scrub encroachment. The impact of the increase in sheep numbers is also not clear; increased use of winter housing and away wintering may have reduced the impact of greater sheep numbers, especially during the critical winter grazing period. Conversely, increased breed sizes and earlier lambing may have negative ecological impacts, coupled with more widespread use of supplementary winter feeding and access to feeding on the hills. Furthermore, the statistics may underestimate the increase; the Census records a snapshot at the beginning of June, by which time some lambs (from a trend to earlier lambing) may have been sold and are not, therefore, recorded.

  ESA entry (65% take up) has recently encouraged a swing back towards spring calving, with reduced summer grazing pressures. Where cattle fields are subsequently 'cleaned' by sheep grazing, some species of grass are avoided and are now burned by farmers, with negative effects.

  Some rough grazing may have been improved to accommodate the increased sheep numbers, while existing grassland may also have been improved. However, it is interesting to note that the total number of all livestock units in the NA only increased by 3% (from 98,126 units to 101,114 units), suggesting the grazing pressure of more sheep may have been at least partly compensated by reduced cattle grazing. Moreover, as the total forage area (all grassland and rough grazing) increased by 4% between 1975-1994, the number of livestock units in the NA actually remained constant at 1.1 livestock units per forage hectare. This suggests that the impact of changes to stocking probably varied from farm to farm, with overgrazing on some holdings and undergrazing on others. Other sources suggest this is indeed the case, with English Nature stating overgrazing is damaging parts of Exmoor (EN information sent to CPM and LUC), while according to the Quantock Hills Management Plan[38] undergrazing is leading to scrub encroachment on heathland (both within the NA).

A recent study by ADAS (1991)[39] suggests that in some situations, decreasing stocking rates can improve margins on sheep farms;

- *Changes to Dairy Farms.* The decline in the number of dairy cows may have had the same mixed consequences for nature conservation as has the fall in number of beef cattle. The increase in average herd size suggests that on at least some farms there may have been an intensification of grassland use, including the more widespread use of silage cutting, the introduction of forage maize and greater risk of water pollution.

13.16 Indirect Effects. These will include:

- *decreased labour.* The fall in the number of full-time workers and farmers may have led to less labour availability for the management of wildlife habitats, such as:

  a) active shepherding to prevent the over or undergrazing of moors and heaths;

  b) regular controlled burning of heather;

  c) sympathetic management of hedgerows and woodlands.

  Conversely, the growth in the number of part-time and hobby farms, and the use of family labour, may have led to a net increase in the number of occupiers sympathetic to nature conservation;

- decrease in rented land. The fall in the area of rented land may reflect the decline of large estates, many of which maintained valuable upland habitats for their sporting potential. It is unclear whether such land will receive such beneficial management when farmed by smaller holdings.

14.0 STRATIFICATION OF FARM TYPES : EXMOOR AND QUANTOCKS NA

14.1 The analysis of farm census data in the previous chapter allows farms to be categorised according to their impact on nature conservation over the last 20 years. This will allow those farms most vulnerable to change, or which present the greatest opportunities for nature conservation, to be identified and targeted.

14.2 The majority of the farmed area of the NA is grassland (87%), of which the majority is rough grazing or >5 years. Over half of farm types are part-time, with cattle and sheep (32%) and dairy (10%) making up the majority of full-time farm businesses. One of the greatest difficulties in defining farm stratifications for the NA is the movement between enclosed and moor/heath, which is reported to greatly exceed the net increase over the twenty year study period (Countryside Commission 1991). It is not possible to identify which farm types occupy this land area.

14.3 By comparing the impact on different farm types it is possible to separate farm types according to their impact on nature conservation issues. These categories are given in **Table 14.1:**

Table 14.1 : Summary of Farm Type Effects

Farm Type	Farming Change	Possible Impact on Environment	Importance to NA
Cattle & Sheep	Increased enclosed farmed area	Loss of heath and moor	VERY HIGH
	Fall in cattle numbers, increase in sheep numbers	Qualitative change in grazing of grassland. Over or undergrazing in certain areas	HIGH
	Increase in long-term grassland, return of some rough grazing	Loss of some rough grazing in some areas, reversion to rough grazing in others	HIGH
	Loss of short-term grassland	Less intensive grassland use	LOW
	Fall in number of full-time workers	Neglect of wildlife habitats and beneficial activities	MEDIUM

Dairying	Fall in number of dairy cows Increased stocking on some remaining units	Where not replaced by beef cattle, qualitative change to grazing more intensive grassland use, more risk of pollution	MEDIUM/ LOW
Part-time	Increase in part-time farms and farmers	neglect of wildlife features on some farms Increased opportunities for wildlife on other farms	HIGH LOCALISED/ MEDIUM

14.4 As well as categorising the general farm types, those farms most vulnerable to change within these categories may be identified. These would appear to be as follows:

- *Cattle and Sheep Farms >100ha*
  There has been a small increase in the number of such farms. It is not possible to identify from published statistics the extent to which these farms are responsible for the increased area of enclosed land. There will undoubtedly be such areas, and therefore they offer opportunities for enhancement.

- *Cattle and Sheep Farms 20-50ha*
  The 12% decline in the number of farms between 20-50ha suggests that cattle and sheep farms within this category may be under economic pressure. Such farms may find it difficult to remain viable. As a result many farms may have had to either:

  a) lay off hired workers or become part-time, in order to supplement income with work elsewhere. Both may lead to neglect of wildlife habitats; or

  b) increase farm area to remain viable; and/or

  c) increase stocking levels.

  However, farms in this category may also be attracted to conservation schemes, such as the Exmoor ESA, due to the regular income they provide and the opportunity they present in reducing costs through less intensive farming;

- *Large Estates*
  The decline in the rented area suggests that a number of estates may have fragmented, with consequences for the habitats previously under their ownership and management. Furthermore, the decline in labour inputs on the largest holdings suggests some estates may have had to reduce their labour force, which may have led to the neglect of management beneficial to wildlife;

- *Dairy Farms*
  The NA's remaining dairy farms may have intensified their enterprises to increase output, leading to more intensive grassland use. Smaller dairy farms, with their more limited resources, may be particularly vulnerable to financial pressures to intensify grassland use;

- *Part-time Farms*
  The increase in part-time holdings may lead to the neglect of features important to wildlife, as part-time farmers may not have the resources required for maintenance. Other farmers may have a strong interest in nature conservation and may be attracted by less intensive farming methods and conservation schemes, thus offering greater enhancement opportunities.

Survey Sample

14.5 Accordingly we suggest a sample for survey as follows:

Table 14.2 : Suggested Sample Structure

Type	Sample Number	Reason for Inclusion
Cattle and Sheep >100ha	2	Pressure for increased enclosure/enhancement opportunities. To cover farms with recent enclosure
Cattle and Sheep 50-100ha	2	
Cattle and Sheep 20 - 50ha	2 Full-time 1-2 part-time	This category likely to include some part-time farms
Large estates - estate owners	1 estate	To ensure some new woodland planting
Dairy Farms	1 large - Quantocks 1 small	To cover farms with more recent intensification

PART F : REFERENCES

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