Little Pygly Farm Answers

Readers are invited to complete the crossword style puzzle below (which should have 14 black squares when complete) and discover that jealously-guarded secret, the age of Mrs Grooby, Farmer Dunks' mother-in-law. **86**

It should be noted that one of the Across numbers is the same as one of the Downs. This is the only case of the same number occurring twice, although one of the numbers in the puzzle (relating to something quite different) happens to be the area in roods of the rectangular field known as Dog's Mead. Readers should imagine, if they will, that the year is 1935. They may be interested to know that a rood is a quarter of an acre, one acre being 4840 square yards, and one mile being 1760 yards. Younger readers may also like to know that there were 20 shillings in a pound in 1935.

[1]3	8	[2]7	[3]2	0		[4]1
5		[5]3	2		[6]4	4
5		9		[7]3	5	2
	[8]1	6	[9]1	0		
[10]7	2		[11]1	9	[12]1	[13]3
9				[14]7	9	2
[15]2	7		[16]1	6		5

Across Clues

1. Area in square yards of Dog's Mead
5. Age of Farmer Dunks' daughter, Martha
6. Difference in yards between length and breadth of Dog's Mead
7. 9 Down multiplied by the number of roods in Dog's Mead
8. Date when the Dunks family first came into occupation of Little Pygly
10. Farmer Dunks' age
11. The year of birth of Mary, Farmer Dunks' youngest child
14. The perimeter in yards of Dog's Mead
15. The cube of Farmer Dunks' walking speed in miles per hour
16. 15 Across minus 9 Down

Down Clues

1. Value in shillings per acre of Dog's Mead
2. The square of Mrs Grooby's age
3. The age of Mary
4. Value of Dog's Mead in pounds sterling
6. Age of Farmer Dunks' firstborn, Ted, who will be twice as old as Mary next year
7. Square of number of yards in width of Dog's Mead
8. Number of minutes taken by Farmer Dunks to walk 1⅓ times round Dog's Mead
9. See 10 Down
10. 10 Across x 9 Down
12. One more than the sum of the figures in the second column down
13. Length of time, in years, Little Pygly has been occupied by the Dunks family

Logic of Solution (One Possible Approach)

1. Using the usual rules of crosswords based on the starts of answers, 11 black squares can be filled in straight away on the grid:
   - above 6 Down, 8 Down, 9 Down, 12 Down and 13 Down
   - to the left of 5 Across, 6 Across, 8 Across, 11 Across, 14 Across and 16 Across
2. The square in the third column of the penultimate row can also be made black as no Across clue starts to the left of it. One or other of the squares to the left of this one also needs to be made black for the same reason. Looking at the clue for 10 Down, however, the answer is a multiple of Farmer Dunks' age, so it must be more than a single digit answer. Thus the other square to be made black is the one in the second column of the penultimate row.
3. 16 Across is the difference between 15 Across and 9 Down, which we now know are both two-digit answers, so 16 Across can only be one or two digits. If it were only one digit, it wouldn't link into the rest of the crossword grid. So 16 Across must be two digits and the final (given that the introduction says there are 14 in all) black square is thus the penultimate column on the last row.
4. The clue for 8 Across indicates a year and, given that the date at the time of the events in the puzzle is 1935, and the answer has four digits, the first one must be a '1'. Likewise, the first digit of 11 Across, referring to another past year, must be a '1'.
5. 15 Across is a two-digit cubic number, the cube of Farmer Dunks' walking speed in miles per hour. The only whole number options for his walking speed which would give a two-digit cube are 3 miles per hour ($3^3 = 27$) or 4 miles an hour ($4^3 = 64$). The first digit of 15 Across (and the final digit of 10 Down) is thus either '2' (if he walks at 3 mph) or '6' (if he walks at 4 mph).
6. 10 Down is the multiple of 10 Across and 9 Down. Given that the first digit of 10 Across and 10 Down is the same number, the first digit of 9 Down can only be '1', making 9 Down '11'.
7. With 9 Down as '11' and given, from step 5, that 10 Down ends in '2' or '6', the second digit of 10 Across (which is also the second digit of 8 Down) must also be either '2' or '6', since the result of multiplying a number by 11 always ends in the same digit as the number being multiplied.
8. Thus 8 Down is either '12' or '16' and the clue tells us it is the number of minutes taken by Famer Dunks to walk 1⅓ times round Dog's Mead. From step 5, this could correspond to:
   - 12 minutes if his walking speed is 3 miles per hour
   - 16 minutes if his walking speed is 4 miles per hour
9. One circuit of Dog's Mead is three quarters of 1⅓ circuits, so to walk once round the perimeter of Dog's Mead would take Farmer Dunks:
   - ¾ of 12 = 9 minutes if he walks at 3 miles per hour
   - ¾ of 16 = 12 minutes if he walks at 4 miles per hour
10. Walking at 3 miles per hour, Farmer Dunks would walk 3 miles (5280 yards) in 60 minutes, so would be doing 5280 / 60 = 88 yards per minute. So, in our first possibility, where he takes 9 minutes to walk the perimeter, the perimeter (which is the answer to 14 Across) would be 9 x 88 = 792 yards.
11. If, however, our second possibility is true and he walks at 4 miles per hour, he would walk 4 miles (7040 yards) in 60 minutes and, in 12 minutes (a fifth of that time), he would walk 7040 / 5 = 1408 yards, making the perimeter of Dog's Mead too big to fit in as the answer to 14 Across. So we know that Farmer Dunks must walk at 3 miles per hour and that the perimeter of Dog's Mead is 792 yards. We can fill this in for 14 Across, and we also now know that 15 Across is '27' (3 cubed) and 8 Down is '12'.
12. The 792-yard perimeter of the rectangular field is twice its length plus twice its width, so the sum of the length and width is half of 792, which is 396 yards. By definition, the length must be bigger than the width, so the length must be at least 199 yards, and the width no more than 197 yards.
13. 16 Across is 15 Across (27) minus 9 Down (11), so 16 Across is '16'.
14. 11 Across is the year of birth of Mary, Farmer Dunks' youngest child. Given that the year now is 1935, then if she had been born in the 1800s, she would have to be at least 36, and at least 37 next year, making (from the clue to 6 Down), Ted, farmer Dunks' eldest child, at least 74 next year. This seems unlikely and Farmer Dunks' age (10 Across) could only then be 92. This goes from unlikely to impossible,

because 10 Down would then be 92 x 11 = 1012 which does not fit in the grid. So, Mary must have been born in the 1900s, making her no older than 35, and making the second digit of 11 Across a '9'.

15. Looking at the clue for 12 Down, this is one more than the sum of figures in the second column. Given that we now have three out of four of these figures ('1', '2' and '7', totalling 10), we see that 12 Down, which ends in '9', must be '19', and the total of the second column digits must be 18, so the second digit of 1 Across is '8'.
16. 7 Down is the square of the number of yards in the width of Dog's Mead and we know by now that it is a five-digit number ending '--976'. From step 12, the width is no bigger than 197 yards. 197 squared is 38809, so:
    - the highest possible answer to 7 Down ending in '976' would be '37976' (meaning the width would have to be 194 yards or less, based on taking a square root)
    - the lowest possible answer ending in '976' would be '10976' (meaning the width would have to be over 104 yards, based on taking a square root)
17. Only widths ending in '4' or '6', when squared, would result in a number ending in '6' for 7 Down. So, taking into account the minimum and maximum width from step 16, the only possible widths are 106, 114, 116, 124, 126, 134, 136, 144, 146, 154, 156, 164, 166, 174, 176, 184, 186 or 194 yards. If we square all these numbers, the only one which ends in '976' is 176, which has a square of 30796, which we can thus write into 7 Down.
18. So the width of Dog's Mead is 176 yards and, from step 12, the length must be 396 – 176 = 220 yards. Then the difference between length and width is 220 – 176 = 44 yards, which is the answer to 6 Across.
19. We can also now calculate the area in square yards of Dog's Mead (1 Across) which is its length times its width (176 x 220 = 38720 square yards). Since the introduction tells us that an acre is 4840 square yards, we can also say that Dog's Mead's area in acres is 38720 / 4840 = 8 acres
20. From the introduction, a 'rood' is a quarter of an acre, so Dog's Mead's area is 8 x 4 = 32 roods. The answer to 7 Across is thus 11 (9 Down) x 32 = 352, which also finishes 6 Down, telling us that Ted is 45.
21. The introduction tells us that the answer to one of the clues (relating to something else) also happens to be the area in roods of Dog's Mead (32). 32 can only be entered now in 10 Across or 5 Across. It can't be 10 Across as that is Farmer Dunks' age and, from step 20, he has a 45-year-old son. So it must be 5 Across, meaning that 32 is Martha's age, and Mary's age, reading 3 Down, is 22. This agrees with the last part of the clue for 6 Down, since next year, Ted will be 46, twice Mary's then age of 23.
22. Given that the year is 1935 and Mary is 22, she was born in 1913, which is the answer to 11 Across.
23. We now see in 13 Down, which begins '32-', that Little Pygly farm has been occupied by the Dunks family for 320 or so years, so, given that it is 1935, the answer to 8 Across (the year when they first occupied it), must be '1610', and 13 Down becomes 1935 - 1610 = 325 years.
24. 2 Down (the square of Mrs Grooby's age) now reads 73-6. The square root of 7300 is just over 85, and a little experimentation from there shows that the only square of an age which fits is 86^2 = 7396. **So, the puzzle is essentially solved, as we now know Mrs Grooby is 86**.
25. For the sake of completeness, however, 1 Down is the value of Dog's Mead in shillings per acre and is a 3-digit number beginning with '3'. So the possible range is between 300 and 400. Since we know from step 19 that the area of Dog's mead is 8 acres, its value in shillings must be between 300 x 8 = 2400 shillings (£120) and 400 x 8 = 3200 shillings (£160). 4 Down is the value in pounds and is a three-digit number ending '-42', so the value must be £142.
26. £142 is 142 x 20 = 2840 shillings for 8 acres, so the value in shillings per acre (1 Down) is 2840 / 8 = 355.
27. Finally, Farmer Dunks' age (10 Across), given that he has a 45-year-old son, could be 62, 72, 82 or 92. We ruled out 92 at step 14, and can rule out 82 for the same reason (82 x 11 = 902, so wouldn't fit in 10 Down). So he's either 62, in which case 10 Down would be 62 x 11 = 682, or 72, in which case 10 Down would be 72 x 11 = 792. So which is it? 62 seems unlikely if he has a son who is 45, but the clincher is in the introduction – there is one Across answer and one Down answer which are the same. This is only the case if the answer to 10 Down is '792', matching the perimeter of Dog's Mead, and so Farmer Dunks (10 Across) is 72. Phew!