**Effects of fixed-time artificial insemination using triptorelin on reproductive performance of pigs: a meta-analysis**

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| Table S1 Characteristics of studies on pregnancy rate of pigs | | | | | | | | | | | | | |
| **Study** | **Year** | **Dose (μg/pig)** | **Insemination timing after triptorelin-treatment (h)** | **Timing of triptorelin-treatment (h)** | **Treatment times** | **Treatment group** | | | | **Control group** | | | |
| **Number of pregnant sows** | **Number of nonpregnant sows** | **Total number** | **Pregnancy rate (%)** | **Number of pregnant sows** | **Number of nonpregnant sows** | **Total number** | **Pregnancy rate (%)** |
| Baer et al. | 2004 | 100 | 24 | 96 | 3 | 159 | 16 | 175 | 90.86 | 129 | 31 | 160 | 80.63 |
| Baer et al. | 2004 | 100 | Standing estrus | 96 | 3 | 150 | 17 | 167 | 89.82 | 129 | 31 | 160 | 80.63 |
| Taibl et al. | 2008 | 200 | Standing estrus | 96 | 2 | 29 | 9 | 38 | 76.32 | 26 | 9 | 35 | 74.29 |
| Knox et al. | 2011 | 100 | 8+32 | 96 | 2 | 33 | 9 | 42 | 78.57 | 31 | 10 | 41 | 75.61 |
| Knox et al. | 2011 | 100 | 8+32 | Estrus | 2 | 33 | 9 | 42 | 78.57 | 32 | 9 | 41 | 78.05 |
| Webel et al. | 2012 | 200 | 24 | 99-102 | 1 | 85 | 15 | 100 | 85 | 81 | 18 | 99 | 81.82 |
| Webel et al. | 2012 | 200 | 24 | 96 | 1 | 120 | 30 | 150 | 80 | 111 | 39 | 150 | 74 |
| Knox et al. | 2014 | 200 | 24 | 72 | 1 | 10 | 22 | 32 | 31.25 | 25 | 7 | 32 | 78.13 |
| Knox et al. | 2014 | 200 | 24 | 84 | 1 | 18 | 13 | 31 | 58.06 | 25 | 7 | 32 | 78.13 |
| Knox et al. | 2014 | 200 | 24 | 96 | 1 | 25 | 6 | 31 | 80.65 | 25 | 7 | 32 | 78.13 |
| Knox et al. | 2014 | 200 | 24 | 96 | 1 | 29 | 9 | 38 | 76.32 | 26 | 9 | 35 | 74.29 |
| Knox et al. | 2014 | 25 | Standing estrus | 96 | 1 | 23 | 9 | 32 | 71.88 | 25 | 7 | 32 | 78.13 |
| Knox et al. | 2014 | 100 | Standing estrus | 96 | 1 | 24 | 9 | 33 | 72.73 | 25 | 7 | 32 | 78.13 |
| Knox et al. | 2014 | 200 | Standing estrus | 96 | 1 | 29 | 4 | 33 | 87.88 | 25 | 7 | 32 | 78.13 |
| Fabi et al. | 2017 | 200 | 24 | 96 | 1 | 15 | 9 | 24 | 62.5 | 14 | 10 | 24 | 58.33 |
| Dillard et al. | 2018 | 200 | 24 | 96 | 1 | 180 | 16 | 196 | 91.84 | 342 | 62 | 404 | 84.65 |
| Dillard et al. | 2018 | 200 | 24 | 120 | 1 | 165 | 31 | 196 | 84.18 | 342 | 62 | 404 | 84.65 |
| Dillard et al. | 2018 | 200 | 24 | Proestrus | 1 | 118 | 7 | 125 | 94.4 | 238 | 15 | 253 | 94.07 |
| Dillard et al. | 2018 | 200 | 24 | Proestrus | 1 | 118 | 7 | 125 | 94.4 | 384 | 19 | 403 | 95.29 |
| Dillard et al. | 2018 | 200 | 24 | 4 days estrus | 1 | 83 | 12 | 95 | 87.37 | 83 | 13 | 96 | 86.46 |
| Dillard et al. | 2018 | 200 | 24 | 5 days estrus | 1 | 98 | 19 | 117 | 83.76 | 102 | 16 | 118 | 86.44 |
| Dillard et al. | 2018 | 200 | 24+48 | Proestrus | 2 | 133 | 7 | 140 | 95 | 319 | 19 | 338 | 94.38 |
| Dillard et al. | 2018 | 200 | 24+48 | Proestrus | 2 | 19 | 2 | 21 | 90.48 | 238 | 15 | 253 | 94.07 |
| Dillard et al. | 2018 | 200 | 24+48 | Proestrus | 2 | 14 | 1 | 15 | 93.33 | 384 | 19 | 403 | 95.29 |
| Note: NA= not acquired | | | | | | | | | | | | | |

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| Table S2 Characteristics of studies on farrowing rate of pigs | | | | | | | | | | | | | |
| **Study** | **Year** | **Dose (μg/pig)** | **Insemination timing after triptorelin-treatment(h)** | **Timing of triptorelin-treatment(h)** | **Treatment times** | **Treatment group** | | | | **Control group** | | | |
| **Number of farrowing sows** | **Number of nonfarrowing sows** | **Total number** | **Farrowing rate (%)** | **Number of farrowing sows** | **Number of nonfarrowing sows** | **Total number** | **Farrowing rate (%)** |
| Jackson et al. | 2003 | NA | 8,32 | 96 | 2 | 73 | 53 | 126 | 57.94 | 105 | 21 | 126 | 83.33 |
| Jackson et al. | 2003 | NA | 2,26 | Estrus onset | 2 | 92 | 34 | 126 | 73.02 | 105 | 21 | 126 | 83.33 |
| Baer et al. | 2004 | 100 | 24 | 96 | 3 | 158 | 17 | 175 | 90.29 | 128 | 32 | 160 | 80 |
| Baer et al. | 2004 | 100 | Standing estrus | 96 | 3 | 150 | 17 | 167 | 89.82 | 128 | 32 | 160 | 80 |
| Roski et al. | 2004 | 100 | 8,32 | 96 | 2 | 42 | 5 | 47 | 89.36 | 9 | 0 | 9 | 100 |
| Taibl et al. | 2008 | 200 | Estrus onset | 96 | 2 | 28 | 10 | 38 | 73.68 | 21 | 14 | 35 | 60 |
| Johnston et al. | 2009 | NA | 24 | 96 | 1 | 115 | 35 | 150 | 76.67 | 109 | 41 | 150 | 72.67 |
| Stewart et al. | 2010 | 100 | 8,32 | 96 | 2 | 32 | 4 | 36 | 88.89 | 40 | 8 | 48 | 83.33 |
| Knox et al. | 2011 | 100 | 8,32 | 96 | 2 | 26 | 16 | 42 | 61.9 | 32 | 9 | 41 | 78.05 |
| Knox et al. | 2011 | 100 | 8,32 | Estrus | 2 | 31 | 11 | 42 | 73.81 | 32 | 9 | 41 | 78.05 |
| Knox et al. | 2011 | 100 | 8,32 | 96 | 2 | 98 | 76 | 174 | 56.32 | 95 | 74 | 169 | 56.21 |
| Knox et al. | 2011 | 100 | 8,32 | Estrus | 2 | 99 | 61 | 160 | 61.88 | 95 | 74 | 169 | 56.21 |
| Webel et al. | 2012 | NA | 21-22 | 99-102 | 1 | 81 | 19 | 100 | 81 | 79 | 20 | 99 | 79.8 |
| Webel et al. | 2012 | NA | 24 | 96 | 1 | 115 | 35 | 150 | 76.67 | 109 | 41 | 150 | 72.67 |
| Augspurger et al. | 2012 | 200 | 24 | 96 | 1 | 81 | 19 | 100 | 81 | 85 | 17 | 102 | 83.33 |
| Augspurger et al. | 2012 | 200 | 30 | 96 | 1 | 78 | 23 | 101 | 77.23 | 85 | 17 | 102 | 83.33 |
| Augspurger et al. | 2012 | 200 | 24, 30 | 96 | 1 | 81 | 19 | 100 | 81 | 85 | 17 | 102 | 83.33 |
| Knox et al. | 2014 | 25 | Standing estrus | 96 | 1 | 22 | 10 | 32 | 68.75 | 21 | 11 | 32 | 65.63 |
| Knox et al. | 2014 | 100 | Standing estrus | 96 | 1 | 23 | 10 | 33 | 69.7 | 21 | 11 | 32 | 65.63 |
| Knox et al. | 2014 | 200 | Standing estrus | 96 | 1 | 25 | 8 | 33 | 75.76 | 21 | 11 | 32 | 65.63 |
| Knox et al. | 2014 | 200 | 24-28 | 72 | 1 | 9 | 23 | 32 | 28.13 | 25 | 7 | 32 | 78.13 |
| Knox et al. | 2014 | 200 | 24-28 | 84 | 1 | 16 | 15 | 31 | 51.61 | 25 | 7 | 32 | 78.13 |
| Knox et al. | 2014 | 200 | 24-28 | 96 | 1 | 25 | 6 | 31 | 80.65 | 25 | 7 | 32 | 78.13 |
| Knox et al. | 2014 | 200 | 24 | 96 | 1 | 28 | 10 | 38 | 73.68 | 21 | 14 | 35 | 60 |
| Fabi et al. | 2017 | 200 | 24 | 96 | 1 | 12 | 12 | 24 | 50 | 15 | 9 | 24 | 62.5 |
| Knox et al. | 2017 | NA | NA | NA | NA | 1912 | 402 | 2314 | 82.63 | 2342 | 582 | 2924 | 80.1 |
| Dillard et al. | 2018 | NA | 24，48 | Proestrus | 2 | 131 | 9 | 140 | 93.57 | 316 | 22 | 338 | 93.49 |
| Rodrigues et al. | 2018 | 200 | 24 | 96 | 1 | 46 | 15 | 61 | 75.41 | 59 | 7 | 66 | 89.39 |
| Rodrigues et al. | 2018 | 200 | 24 | 96 | 1 | 42 | 13 | 55 | 76.36 | 41 | 12 | 53 | 77.36 |
| Dillard et al. | 2018 | 200 | 20±4 | 96 | 1 | 149 | 47 | 196 | 76.02 | 304 | 100 | 404 | 75.25 |
| Dillard et al. | 2018 | 200 | 20±4 | 120 | 1 | 128 | 68 | 196 | 65.31 | 305 | 99 | 404 | 75.5 |
| Dillard et al. | 2018 | 200 | 20±4 | Proestrus | 1 | 117 | 8 | 125 | 93.6 | 234 | 19 | 253 | 92.49 |
| Dillard et al. | 2018 | 200 | 20±4；44±4 | Proestrus | 2 | 19 | 2 | 21 | 90.48 | 234 | 19 | 253 | 92.49 |
| Dillard et al. | 2018 | 200 | 20±4 | Proestrus | 1 | 117 | 8 | 125 | 93.6 | 379 | 24 | 403 | 94.04 |
| Dillard et al. | 2018 | 200 | 20±4；44±4 | Proestrus | 2 | 14 | 1 | 15 | 93.33 | 379 | 24 | 403 | 94.04 |
| Dillard et al. | 2018 | 200 | 18-28 | 4 days estrus | 1 | 83 | 12 | 95 | 87.37 | 83 | 13 | 96 | 86.46 |
| Dillard et al. | 2018 | 200 | 18-28 | 5 days estrus | 1 | 98 | 19 | 117 | 83.76 | 102 | 16 | 118 | 86.44 |
| Note: NA= not acquired | | | | | | | | | | | | | |

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| Table S3 Characteristics of studies on total number of pigs born per litter | | | | | | | | | | | |
| **Study** | **Year** | **Dose (μg/pig)** | **Insemination timing after triptorelin-treatment (h)** | **Timing of triptorelin-treatment (h)** | **Treatment times** | **Treatment group** | | | **Control group** | | |
| **Number of farrowing sows** | **Average number of pigs born per litter** | **Standard deviation** | **Number of farrowing sows** | **Average number of pigs born per litter** | **Standard deviation** |
| Baer et al. | 2004 | 100 | 24 | 96 | 3 | 175 | 12.5 | 7.937 | 160 | 10.4 | 7.589 |
| Baer et al. | 2004 | 100 | Standing estrus | 96 | 3 | 167 | 12.6 | 7.754 | 160 | 10.4 | 7.589 |
| Knox et al. | 2011 | 100 | 8,32 | 96 | 2 | 42 | 11.1 | 3.24 | 41 | 10 | 3.202 |
| Knox et al. | 2011 | 100 | 8,32 | Estrus | 2 | 42 | 10.2 | 3.24 | 41 | 10 | 3.202 |
| Knox et al. | 2011 | 100 | 8,32 | 96 | 2 | 174 | 11.1 | 5.276 | 169 | 11.4 | 5.2 |
| Knox et al. | 2011 | 100 | 8,32 | Estrus | 2 | 160 | 10.9 | 5.06 | 169 | 11.4 | 5.2 |
| Webel et al. | 2012 | 200 | 21-22 | 99-102 | 1 | 100 | 11.8 | 3.6 | 99 | 12.1 | 3.582 |
| Webel et al. | 2012 | 200 | 24 | 96 | 1 | 150 | 12.6 | 3.797 | 150 | 12.2 | 3.797 |
| Knox et al. | 2014 | 25 | Standing estrus | 96 | 1 | 32 | 13.2 | 3.96 | 32 | 11.8 | 3.96 |
| Knox et al. | 2014 | 100 | Standing estrus | 96 | 1 | 33 | 12.3 | 4.021 | 32 | 11.8 | 3.96 |
| Knox et al. | 2014 | 200 | Standing estrus | 96 | 1 | 33 | 12.4 | 4.021 | 32 | 11.8 | 3.96 |
| Knox et al. | 2014 | 200 | 24-28 | 72 | 1 | 32 | 10.4 | 5.091 | 32 | 12.4 | 5.091 |
| Knox et al. | 2014 | 200 | 24-28 | 84 | 1 | 31 | 12.4 | 5.011 | 32 | 12.4 | 5.091 |
| Knox et al. | 2014 | 200 | 24-28 | 96 | 1 | 31 | 10.1 | 5.011 | 32 | 12.4 | 5.091 |
| Knox et al. | 2014 | 200 | 24 | 96 | 1 | 38 | 12 | 3.699 | 35 | 12.6 | 3.55 |
| Fabi et al. | 2017 | 200 | 24 | 96 | 1 | 24 | 9.9 | 4.409 | 24 | 12.4 | 4.409 |
| Dillard et al. | 2018 | 200 | 20±4 | 96 | 1 | 196 | 13.2 | 2.8 | 404 | 13.3 | 2.01 |
| Dillard et al. | 2018 | 200 | 20±4 | 120 | 1 | 196 | 12.7 | 4.2 | 404 | 13.3 | 2.01 |
| Dillard et al. | 2018 | 200 | 20±4 | Proestrus | 1 | 125 | 14.8 | 3.354 | 253 | 14.7 | 3.181 |
| Dillard et al. | 2018 | 200 | 20±4 | Proestrus | 1 | 125 | 14.8 | 3.354 | 403 | 14.8 | 4.015 |
| Dillard et al. | 2018 | 200 | 18-28 | 4 days estrus | 1 | 95 | 14.5 | 2.924 | 96 | 14.2 | 2.939 |
| Dillard et al. | 2018 | 200 | 18-28 | 5 days estrus | 1 | 117 | 13.4 | 3.245 | 118 | 13.5 | 3.259 |
| Dillard et al. | 2018 | NA | 24，48 | NA | 2 | 140 | 14.7 | 2.366 | 338 | 14.9 | 3.677 |
| Dillard et al. | 2018 | 200 | 20±4；44±4 | Proestrus | 2 | 21 | 15.3 | 3.208 | 253 | 14.7 | 3.181 |
| Dillard et al. | 2018 | 200 | 20±4；44±4 | Proestrus | 2 | 15 | 15.4 | 3.098 | 403 | 14.8 | 4.015 |
| Note: NA= not acquired | | | | | | | | | | | |

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| Table S4 Characteristics of studies on number of pigs born alive per litter | | | | | | | | | | | |
| **Study** | **Year** | **Dose (μg/pig)** | **Insemination timing after triptorelin-treatment (h)** | **Timing of triptorelin-treatment (h)** | **Treatment times** | **Treatment group** | | | **Control group** | | |
| **Number of farrowing sows** | **Average number of pigs born per litter** | **Standard deviation** | **Number of farrowing sows** | **Average number of pigs born per litter** | **Standard deviation** |
| Roski et al. | 2004 | 100 | 8,32 | 96 | 2 | 10 | 11 | 1.581 | 12 | 8.7 | 3.811 |
| Stewart et al. | 2010 | 100 | 8,32 | 96 | 2 | 11 | 11 | 1.658 | 40 | 10.6 | 3.162 |
| Knox et al. | 2011 | 100 | 8,32 | 96 | 2 | 42 | 9.2 | 3.888 | 41 | 8.7 | 3.842 |
| Knox et al. | 2011 | 100 | 8,32 | estrus | 2 | 42 | 8.6 | 3.888 | 41 | 8.7 | 3.842 |
| Knox et al. | 2011 | 100 | 8,32 | 96 | 2 | 174 | 10.3 | 3.4 | 169 | 10.5 | 3.4 |
| Knox et al. | 2011 | 100 | 8,32 | estrus | 2 | 160 | 10 | 3.4 | 169 | 10.5 | 3.4 |
| Webel et al. | 2012 | 200 | 21-22 | 99-102 | 1 | 100 | 11.2 | 3.4 | 99 | 11.4 | 3.383 |
| Webel et al. | 2012 | 200 | 24 | 96 | 1 | 150 | 11.3 | 3.552 | 150 | 10.9 | 3.552 |
| Knox et al. | 2014 | 25 | Standing estrus | 96 | 1 | 32 | 11.5 | 3.96 | 32 | 10.9 | 3.96 |
| Knox et al. | 2014 | 100 | Standing estrus | 96 | 1 | 33 | 11.2 | 4.021 | 32 | 10.9 | 3.96 |
| Knox et al. | 2014 | 200 | Standing estrus | 96 | 1 | 33 | 11 | 4.021 | 32 | 10.9 | 3.96 |
| Knox et al. | 2014 | 200 | 24-28 | 72 | 1 | 32 | 10.9 | 5.091 | 32 | 10.6 | 5.091 |
| Knox et al. | 2014 | 200 | 24-28 | 84 | 1 | 31 | 10 | 5.011 | 32 | 10.6 | 5.091 |
| Knox et al. | 2014 | 200 | 24-28 | 96 | 1 | 31 | 8.7 | 5.011 | 32 | 10.6 | 5.091 |
| Knox et al. | 2014 | 200 | 24 | 96 | 1 | 38 | 10.7 | 3.699 | 35 | 11.5 | 3.55 |
| Fabi et al. | 2017 | 200 | 24 | 96 | 1 | 24 | 8.8 | 4.409 | 24 | 11.4 | 4.409 |
| Dillard et al. | 2018 | 200 | 24, 48 | NA | 2 | 140 | 13.4 | 2.366 | 338 | 13 | 3.677 |
| Dillard et al. | 2018 | 200 | 20±4 | 96 | 1 | 196 | 12.8 | 2.8 | 404 | 13 | 2.01 |
| Dillard et al. | 2018 | 200 | 20±4 | 120 | 1 | 196 | 12 | 4.2 | 404 | 13 | 2.01 |
| Dillard et al. | 2018 | 200 | 20±4 | Proestrus | 1 | 125 | 13.4 | 3.354 | 253 | 12.8 | 3.181 |
| Dillard et al. | 2018 | 200 | 20±4；44±4 | Proestrus | 2 | 21 | 13.9 | 2.291 | 253 | 12.8 | 3.181 |
| Dillard et al. | 2018 | 200 | 20±4 | Proestrus | 1 | 125 | 13.5 | 3.354 | 403 | 13.1 | 4.015 |
| Dillard et al. | 2018 | 200 | 20±4；44±4 | Proestrus | 2 | 15 | 14 | 2.711 | 403 | 13.1 | 4.015 |
| Dillard et al. | 2018 | 200 | 18-28 | 4 days estrus | 1 | 95 | 13.2 | 2.924 | 96 | 13.1 | 2.939 |
| Dillard et al. | 2018 | 200 | 18-28 | 5 days estrus | 1 | 117 | 12.1 | 3.245 | 118 | 12.4 | 3.259 |
| Rodrigues et al. | 2018 | 200 | 24 | 96 | 1 | 61 | 13.2 | 3.7 | 66 | 14.6 | 3.9 |
| Rodrigues et al. | 2018 | 200 | 24 | 96 | 1 | 55 | 12.4 | 4.1 | 53 | 12.6 | 3.7 |
| Note: NA= not acquired | | | | | | | | | | | |