



The University of
Nottingham

UNITED KINGDOM • CHINA • MALAYSIA

Wills, Jennifer Rose (2012) Diagnosis and mechanisms of bovine ovarian cysts. PhD thesis, University of Nottingham.

Access from the University of Nottingham repository:

<http://eprints.nottingham.ac.uk/12674/10/BIBLIOGRAPHY.pdf>

Copyright and reuse:

The Nottingham ePrints service makes this work by researchers of the University of Nottingham available open access under the following conditions.

This article is made available under the University of Nottingham End User licence and may be reused according to the conditions of the licence. For more details see:
http://eprints.nottingham.ac.uk/end_user_agreement.pdf

For more information, please contact eprints@nottingham.ac.uk

BIBLIOGRAPHY

- ADASHI, E.Y. 1998. The IGF family and folliculogenesis. *Journal of Reproductive Immunology*. 39:13-19
- ADAMS, G.P., MATTERI, R.L., KASTELIC, J.P., KO, J.C.H., GINTHER, O.J. 1992. Association between surges of follicle-stimulating hormone and the emergence of follicle waves in heifers. *Journal of Reproductive Immunology*. 39:13-19
- ADAMS, G.P., PIERSON, R.A. 1995. Bovine model for study of ovarian follicular dynamics in humans. *Theriogenology*. 43: 113-120
- AHMAD, N., TOWNSEND, E.C., DAILEY, R.A., INSKEEP, E.K. 1997. Relationships of hormonal patterns and fertility to occurrence of two or three waves of ovarian follicles, before and after breeding, in beef cows and heifers. *Animal Reproduction Science*. 49(1): 13-28.
- AMBROSE, D.J., KASTELIC, J.P., CORBETT, R., PITNEY, P.A., PETIT, H.V., SMALL, J.A., ZALKOVIC, P. 2006. Lower pregnancy losses in lactating dairy cows fed a diet enriched in α -linolenic acid. *Journal of Dairy Science*. 89(8): 3066-3074
- ANDERSON, L.E., WU, Y.L., TSAI, S.J., WILTBANK, M.C. 2001. Prostaglandin F_{2 α} receptor in the corpus luteum: Recent information on the gene, messenger ribonucleic acid, and protein. *Biology of Reproduction*. 64 (4): 1041-1047
- ANIMALS IN SCIENTIFIC PROCEDURES ACT 1986 C. 14
- ARMSTRONG, D.G., BAXTER, G., GUTIERREZ, C.G., HOGG, C.O., GLAZYRIN, A.L., CAMPBELL, B.K., BRAMLEY, T.A., WEBB, R. 1998. Insulin-like growth factor binding protein -2 and -4 mRNA expression in bovine ovarian follicles: effect of gonadotropins and developmental status. *Endocrinology*. 139: 2146-2154
- ARMSTRONG, D.G., BAXTER, G., HOGG, C.O., WOAD, K.J. 2002. Insulin-like growth factor (IGF) system in the oocyte and somatic cells of bovine pre-antral follicles. *Reproduction*. 123: 789-797
- ARMSTRONG, D.G., GUTIERREZ, C.G., BAXTER, G., GLAZYRIN, A.L., MANN, G.E., WOAD, K.J., HOGG, C.O., WEBB, R. 2000. Expression of mRNA encoding IGF-I, IGF-II and type 1 IGF receptor in bovine ovarian follicles. *Journal of Endocrinology*. 165: 101-113
- BAJEMA, D.H., HOFFMAN, M.P., AITCHISON, T.E., FORD, S.P. 1994. Use of cow side progesterone test to improve reproductive performance of high producing dairy

cows. *Theriogenology*. 42(5): 765-771

BAKER, J., HARDY, M.P., ZHOU, J., BONDY C., LUPU, F., BELLVÉ, A.R., EFSTRATIADIS, A. 1996. Effects of IGF=I gene null mutation on mouse reproduction. *Molecular Endocrinology*. 10: 903-918

BAO, B., CALDER, M.D., XIE, S., SMITH, M.F., SALFEN, B.E., YOUNGQUIST, R.S., GARVERICK, H.A. 1998. Expression of steroidogenic acute regulatory protein messenger ribonucleic acid is limited to theca of healthy bovine follicles collected during recruitment, selection and dominance of follicle of the first follicular wave. *Biology of Reproduction*. 59: 953-959

BAO, B., GARVERICK, H.A., SMITH, G.W., SMITH, M.F., SALFEN, B.E., YOUNGQUIST, R.S. 1997. Changes in messenger ribonucleic acid encoding luteinising hormone receptor, cytochrome P450-side chain cleavage, and aromatase are associated with recruitment and selection of bovine ovarian follicles. *Biology of Reproduction*. 56: 1158-1168

BATTINO, J. 1992. Echogenicity of blood. *Journal of Radiology*. 73(12): 705-708

BAXTER, R.C. 1980. Simplified approach to confidence limits in radioimmunoassay. *Clinical Chemistry*. 26: 763-765

BEAM, S.W., BUTLER, W.R. 1999. Effects of energy balance on follicular development and first ovulation in postpartum dairy cows. *Journal of Reproduction and Fertility Supplement*. 54: 411-424

BEG, M.A., BERGFELT, D.R., KOT, K., WILTBANK, M.C., GINTHER O.J. 2001. Follicular fluid factors and granulosa cell gene expression associated with follicle deviation in cattle. *Biology of Reproduction*. 64: 432-441

BELL, A.W., SLEPTIS, R., EHRHARDT, R.A. 1995. Growth and accretion of energy and protein in the gravid uterus during late pregnancy in Holstein cows. *Journal of Dairy Science*. 78: 1954-1961

BERGFELD, E.G.M., KOJIMA, F.N., CUPP, A.S., WEHRMAN, M.E., PETERS, K.E., MARISCAL, V., SANCHEZ, T., KINDER, J.E. 1996. Changing dose of progesterone results in sudden changes in frequency of luteinising hormone pulses of 17 β -estradiol in bovine females. *Biology of Reproduction*. 54: 546-553

BERGFELT, D.R., KULICK, L.J., KOT, K., GINTHER O.J. 2000. Follicular and hormonal responses to experimental suppression of FSH during follicular deviation in cattle. *Theriogenology*. 54: 1191-1206

- BERISHA, B., PFAFFL, M.W., SCHAMS, D. 2002. Expression of estrogen and progesterone receptors in the bovine ovary during estrous cycle and pregnancy. *Endocrine*. 17: 207-214
- BLOWEY, R.W. 1999. A veterinary book for dairy farmers. Third Edition. Ipswich, UK. Old Pond Publishing p263
- BO, G.A., ADAMS, G.P., NASSER, E.F., PIERSON, R.A., MAPLETOFT, R.J. 1993. Effects of estradiol valerate on ovarian follicles, emergence of follicular waves and circulating gonadotropins in heifers *Theriogenology*. 40: 225-239
- BOGIN, E., AVIDEN, Y., MEROM, M., SOBACK, S., BRENNER, G. 1988. Biochemical changes associated with fatty liver syndrome in cows. *Journal of Comparative Pathology*. 98: 337-347
- BORSBERRY, S., DOBSON, H. 1989. Peri-parturient diseases and their effect on reproductive performance in five dairy herds. *Veterinary Record*. 124: 217-219
- BOSU, W.K.T., PETER, A.T. 1987. Evidence for a role of intrauterine infections in the pathogenesis of cystic ovaries in postpartum dairy cows. *Theriogenology*. 28: 725-736
- BRAW-TAL, R., ROTH, Z. 2005. Gene expression for LH receptor, 17 α -hydroxylase and StAR in the theca interna of preantral and early antral follicles in the bovine ovary. *Reproduction*. 129: 453-461
- BRAW-TAL, R., PEN, S., ROTH, Z. 2009. Ovarian cysts in high-yielding dairy cows. *Theriogenology*. 72(5): 690-698
- BRAW-TAL, R., YOSSEFI, S. 1997. Studies *in vivo* and *in vitro* on the initiation of follicle growth in the bovine ovary. *Journal of Reproduction and Fertility*. 109: 165-171
- BUCKLEY, O'SULLIVAN, K., MEE, J.F., EVANS, R., DILLON, P. 2003. Relationships among milk yield, body condition score cow weight, and reproduction in spring calved Holstein Friesian. *Journal of Dairy Science*. 86: 2308-2319
- BUTLER, W.R. 2000. Nutritional interactions with reproductive performance in dairy cattle. *Animal Reproduction Science*. 60-61: 449-457
- CALDARI-TORRES, C., LOCK, A.L., STAPLES, C.R., BADINGA, L. 2011. Performance metabolic, and endocrine responses of peri-parturient Holstein cows fed 3 sources of fat. *Journal of Dairy Science*. 94(3): 1500-1510
- CAMERON, R.E.B., DYK, P.B., HERDT, T.H., KANEENE, J.B., MILLER, R., BUCHOLTZ, H.F., LIESMAN, J.S., VANDEHAAR, M.J., EMERY, R.S. 1998. Dry

- cow diet, management, and energy balance as risk factors for displaced abomasum in high producing dairy herds. *Journal of Dairy Science*. 81: 132-139
- CAMPBELL, B.K., BAIRD, D.T., WEBB, R. 1998. Effects of dose of LH on androgen production and luteinisation of ovine theca cells cultured in a serum-free system. *Journal of Reproduction and Fertility*. 112: 69-77
- CAMPBELL, B.K., GORDON, B.M., SCARAMUZZI, R.J. 1994. The effect of ovarian arterial infusion of transforming growth factor α on ovarian follicle populations and ovarian hormone secretion in ewes with an auto transplanted ovary. *Journal of Endocrinology*. 143: 13-24
- CAMPBELL, B.K., MANN, G.E., MCNEILLY, A.S., BAIRD, D.T. 1990. The pattern of ovarian inhibin, estradiol and androstenedione secretion during the estrous cycle of the ewe. *Endocrinology*. 127(1): 227-235
- CANFIELD, R.W., BUTLER, W.R. 1990. Energy balance and pulsatile LH secretion in early postpartum dairy cattle. *Domestic Animal Endocrinology*. 7(3): 323-330
- CAVALIERI, J., HEPWORTH, G., FITZPATRICK, L.A., SHEPHARD, R.W., MACMILLAN, K.L. 2006. Manipulation and control of the estrous cycle in pasture-based dairy cows. *Theriogenology*. 65: 45-64
- CAVESTANY, D., EL-WHISHY, A.B., FOOT, R.H. 1985. Effect of season and high environmental temperature on fertility of Holstein cattle. *Journal of Dairy Science*. 68: 1471-1478
- CHASE Jr, C.C., KIRBY, C.J., HAMMOND, A.C., OLSEN, T.A., LUCY, M.C. 1998. Patterns of ovarian growth and development in cattle with a growth hormone receptor deficiency. *Journal of Animal Science*. 76: 212-219
- CHAVATTE, P.M., ARCHBALD, L.F., RISCO, C., TRAN, T., SUMRALL, D. 1992. Effectiveness of prostaglandin F 2α in the initial treatment of bovine ovarian cysts. *Theriogenology*. 40: 745-755
- CHUN, S.Y. EISENHAUER, K., KUBO, M., HSEUH, A.J.W. 1995. Interleukin- $I\beta$ suppresses apoptosis in rat ovarian follicles by increasing nitric oxide production. *Endocrinology*. 136: 3120-3127
- CHUN, S.Y., BILLIG, H., TILLY, J.L., FURUTA, I., TSAFRIRI, A, HSEUH, A.J.W. 1994. Gonadotropin suppression of apoptosis in cultured pre-ovulatory follicles: mediatory role of endogenous IGF-I. *Endocrinology*. 135: 1845-1853
- CLARK, L.J., IRVING-RODGERS, H.F., DHARMARAJAN, A.M., RODGERS, R.J.

2004. Theca interna: the other side of bovine follicular atresia. *Biology of Reproduction*. 71: 1071-1078
- COLE, W.J., BIERSCWAL, C.J., YOUNGQUIST, R.S., BRAUN, W.F. 1986. Cystic ovarian disease in a herd of Holstein cows: a hereditary correlation. *Theriogenology*. 25(6): 813-820
- COLEMAN, D.A. 2010. Cystic ovarian disease [online] available at <http://www.wvu.edu/~exten/infores/pubs/livepoul/dirm25.pdf> [accessed 26th October 2010]
- COLLET, C., LECOMTE, P., GUILLOTEAU, D., LEJEUNE, B., LECOMTE, C., BESNARD, J-C. 1999. Luteinising hormone measurement in polycystic ovary syndrome: a practical approach. *European Journal of Endocrinology*. 141: 225-230
- CONSTABLE, P.D. 2007. *Veterinary Medicine: A textbook of the diseases of cattle, horses, sheep, pigs, and goats*. 10th Edition. Edinburgh. Elsevier Saunders.
- COOK, D.L., PARFET, J.R., SMITH, C.A., MOSS, G.E., YOUNGQUIST, R.S., GARVERICK, H.A. 1991. Secretory patterns of LH and FSH during development and hypothalamic and hypophysial characteristics following the development of steroid induced ovarian follicular cysts in dairy cattle. *Journal of Reproduction and Fertility*. 91: 19-28
- COOPS, I.E. 1966. Effect of flushing on reproductive performance of ewes. *Journal of Agricultural Science*. 67(3): 305-323
- CRANE, M.B., MELENDEZ, P., BARTOLOME, J., DE VRIES, A., RISCO, C., ARCHBALD, L.F. 2006. Association between milk production and treatment response of ovarian cysts in lactating dairy cows using the Ovsynch protocol. *Theriogenology*. 66 (5): 1243-1248
- CURTIS, C.R., ERB, H.N., SNIFFEN, C.J., SMITH, D.R., KRONFELD, D.S. 1985. Path analysis of dry period nutrition, postpartum metabolic and reproductive disorders, and mastitis in Holstein cows. *Journal of Dairy Science*. 68(9): 2347-2360
- D'HAESELEER, M., SIMOENS, P., VAN DEN BROECK, W. 2007. Cell-specific localization of progesterone receptors in the bovine ovary at different stages of the oestrous cycle. *Animal Reproduction Science*. 98: 271-281
- DA SILVA-BUTTKUS, P., JAYASOORIYA, G.S., MORA, J.M., MOBBERLEY, M., RYDER, T.A., BAITHUN, M., STARK, J., FRANKS, S., HARDY, K. 2008. Effect of cell shape and packing density on granulosa cell proliferation and formation of multiple

- layers during early follicle development in the ovary. *Journal of Cell Science*. 121: 3890-3900
- DANN, H.M., MORIN, D.E., BOLLERO, G.A., MURPHY, M.R., DRACKLEY, J.K. 2005. Prepartum intake, postpartum induction of ketosis, and peri-parturient disorders affect the metabolic status of dairy cows. *Journal of Dairy Science*. 88(9): 3249-3264
- DARWASH, A.O., LAMMING, G.E., WOOLLIAMS, J.A. 1997. The phenotypic association between the interval to postpartum ovulation and traditional measures of fertility in dairy cattle. *Animal Science*. 65: 9-16
- De RENSIS, F., SCARAMUZZI, R.J. 2003. Heat stress and seasonal effects on reproduction in the dairy cow-a review. *Theriogenology*. 60: 1139-1151
- DIJKHUIZEN, A.A., STELWAGEN, J., RENKEMA, J.A. 1985. Economic aspects of reproductive failure in dairy cattle. I. Financial loss at farm level. *Preventive Veterinary Medicine*. 3: 251-263
- DIGHE, K.K., HUNTER, W.M. 1974. A solid phase radioimmunoassay for plasma progesterone. *Biochemical Journal*. 143: 219-231
- DILUGI, A., WEITZMAN, V.N., PACE, M.C., SIANO, L.J., MAIER, D., MEHLMANN, L.M. 2008. Meiotic arrest in human oocytes is maintained by a G_s signalling pathway. *Biology of Reproduction*. 78: 667-672
- DINSMORE, R.P., WHITE, M.E., ENGLISH, P.B. 1990. An evaluation of simultaneous GnRH and cloprostenol treatment of dairy cattle with cystic ovaries. *Canadian Veterinary Journal*. 31: 280-284
- DOHOO, I.R., MARTIN, S.W., McMILLAN, I., KENNEDY, B.W. 1984. Disease, production and culling in Holstein-Friesian cows. II. Age, season and sire effects. *Preventive Veterinary Medicine*. 2:655-670
- DONG, J., ALBERTINI, D.F., NISHIMORI, K., KUMAR, T.R., LU, N., MATZUK, M.M. 1996. Growth differentiation factor-9 is required during early ovarian folliculogenesis. *Nature*. 383:531-535
- DOUTHWAITE, R., DOBSON, H. 2000. Comparison of different methods of diagnosis of cystic ovarian disease in cattle and an assessment of its treatment with a progesterone-releasing intra-vaginal device. *Veterinary Record*. 147: 355-359
- DRACKLEY, J.K. 1999. Biology of dairy cows during the transition period: the final frontier? *Journal of Dairy Science*. 82(11): 2259-2273
- DUFAU, M.L. 1998. The LH receptor. *Annual Review of Physiology*. 60: 461-496

- DUFFIELD, T.F., KELTON, D.F., LESLIE, K.E., LISSEMORE, K.D., LUMSDEN, J.H. 1997. Use of test day milk fat and milk protein to detect subclinical ketosis in dairy cattle in Ontario. *Canadian Veterinary Journal*. 38: 713-718
- DUGGAVATHI, R., JANARDHAN, K., SINGH, J., SINGH, B., BARRETT, D.M.W., DAVIES, K.L., BAGU, E.T., RAWLINGS, N.C. 2006. Patterns of expression of steroidogenic enzymes during the first wave of the ovine estrous cycle as compared to the pre-ovulatory follicle. *Animal Reproduction Science*. 91 (3-4): 345-352
- DUNN, T.G., KALTENBACH, C.C. 1980. Nutrition and the postpartum interval of the ewe, sow and cow. *Journal of Animal Science*. 51(suppl. 11): 29-39
- DYK, P.B., EMERY, R.S., LEISMAN, J.L., BUCHOLTZ, H.F., VANDER HAAR, M.J. 1995. Prepartum non-esterified fatty acids in plasma are higher in cows developing periparturient health problem. *Journal of Dairy Science*. 78(Suppl. 1): 264 (Abstract)
- ECHTERNKAMP, S.E., GREGORY, K.E. 1999. Effects of twinning on gestation length, retained placenta and dystocia. *Journal of Animal Science*. 77(1): 39-47
- EDMONSON, A.J., LEAN, I.J., WEAVER, L.D., FARYER, T., WEBSTER, G. 1989. A body condition scoring chart for Holstein dairy cows. *Journal of Dairy Science*. 72(1): 68-78.
- EDSON, M.A., NAGARAJA, A.K., MATZUK, M.M. 2009. The mammalian ovary from genesis to revelation. *Endocrine Reviews*. 30(6): 624-712
- EISSA, H.M., NACHREINER, R.F., REFSAL, K.R. 1995. Effects of sample handling temperatures on bovine skim milk progesterone concentrations. *Theriogenology*. 43(5): 893-898
- ERB, H.N., SMITH, R.D., OLTENACU, P.A., GUARD, C.L., HILLMAN, R.B., POWERS, P.A., SMITH, M.C. 1985. Path model of reproductive disorders and performance, milk fever, mastitis, milk yield and culling in Holstein cows. *Journal of Dairy Science*. 68(12): 3337-3349
- ESSLEMONT, R.J., KOSSAIBATI, M.A. 2002. The cost of poor fertility and disease in UK dairy herds, trends in DAISY herds over 10 seasons. Daisy Research Report No. 5. Milton Keynes: Intervet UK Ltd.
- EVANS, A.C.O. 2003. Characteristics of Ovarian Follicle Development in Domestic Animals. *Reproduction in Domestic Animals*. 38: 240-246
- EVANS, A.C.O., IRELAND, J.L.H., WINN, M.E., LONERGAN, P., SMITH, G.W.,

- COUSSENS, P.M., IRELAND, J.J. 2004. Identification of genes involved in apoptosis and dominant follicle development during follicular waves in cattle. *Biology of Reproduction*. 70: 1475-1484
- FARIN, P.W., YOUNGQUIST, R.S., PARFET, J.R., GARVERICK, H.A. 1990. Diagnosis of luteal and follicular ovarian cysts in dairy cows by sector scan ultrasonography. *Theriogenology*. 24(4): 633-642
- FENWICK, M.A., FITZPATRICK, R., KENNY, D.A., DISKIN, M.G., PATTON, J., MURPHY, J.J., WATHES, D.C. 2008. Interrelationships between negative energy balance (NEB) and IGF regulation in liver of lactating dairy cows. *Domestic Animal Endocrinology*. 34: 31-44
- FINDLAY, J.K., DRUMMOND, A.E., FRY, R.C. 1996. Intraovarian regulation of follicular development and ovulation. *Animal Reproduction Science*. 42: 321-331
- FLEISCHER, P., METZNER, M., BEYERBACH, M., HOEDEMAEKER, M., KLEE, W. 2001. The relationship between milk yield and the incidence of some diseases in dairy cows. *Journal of Dairy Science*. 84(9): 2025-2035
- FONSECA, F.A., BRITT, J.H., MCDANIEL, B.T., WILK, J.C., RAKES, A.H. 1983. Reproductive traits of Holsteins and Jerseys. Effects of age, milk yield, and clinical abnormalities on involution of cervix and uterus, ovulation, estrous cycles, detection of estrus, conception rate, and days open. *Journal of Dairy Science*. 66(5): 1128-1147
- FORTUNE, J.E., HANSEL, W. 1985. Concentrations of steroids and gonadotropins in follicular fluid from normal heifers and heifers primed for superovulation. *Biology of Reproduction*. 32: 1069-1079
- FORTUNE, J.E., RIVERA, G.M., EVANS A.C.O., TURZILLO, A.M. 2001. Differentiation of dominant versus subordinate follicles in cattle. *Biology of Reproduction*. 65: 648-654
- FORTUNE, J.E., RIVERA, G.M., YANG, M.Y. 2004. Follicular development: the role of the follicular microenvironment in selection of the dominant follicle. *Animal Reproduction Science*. 82: 109-126
- FORTUNE, J.E., QUIRK, S.M. 1988. Regulation of steroidogenesis in bovine pre-ovulatory follicles. *Journal of Animal Science*. 66(suppl2): 1-8
- FRICKE, P.M. 2001. Review: Twinning in dairy cattle. *The Professional Animal Scientist*. 17: 61-67
- FRICKE, P.M. 2002. Scanning the future-Ultrasonography as a reproductive

- management tool for dairy cattle. *Journal of Dairy Science*. 85: 1918-1926
- FRICKE, P. 2011. Twinning in Dairy Cattle [online] available at <http://www.uwex.edu/ces/dairyrepro/documents/TwinninginDairyCattle.pdf> [accessed 29th March 2011]
- FUKUI, Y., SAKUMA, Y. 1980. Maturation of bovine oocytes cultured in vitro: Relation to ovarian activity, follicular size and the presence or absence of cumulus cells. *Biology of Reproduction*. 22: 669-673
- GARVERICK, H.A. 1997. Ovarian cysts in dairy cows. *Journal of Dairy Science*. 80: 995-1004
- GINTHER, O.J., KOT, K., KULICK, L.J., WILTBANK, M.C. 1997b. Sampling follicular fluid without altering the follicular status in cattle: oestradiol concentrations early in a follicular wave. *Journal of Reproduction and Fertility*. 109: 181-186
- GINTHER, O.J. 2000. Selection of the dominant follicle in cattle and horses. *Animal Reproduction Science*. 60-61:61-79
- GINTHER, O.J., BEG, M.A., BERGFELT, D.R., DONADEU, F.X., KOT, K. 2001a. Follicle selection in monovular species. *Biology of Reproduction*. 65: 638-647
- GINTHER, O.J., BERGFELT, D.R., BEG, M.A., KOT, K. 2001b. Follicle selection in cattle: Role of luteinising hormone. *Biology of Reproduction*. 64: 197-205
- GINTHER, O.J., BERGFELT, D.R., KULICK, L.J., KOT, K. 1998. Pulsatility of schematic FSH and LH concentrations during follicular wave development in cattle. *Theriogenology*. 50: 507-519
- GINTHER, O.J., BERGFELT, D.R., KULICK, L.J., KOT, K. 2000a. Selection of the dominant follicle in cattle: role of estradiol. *Biology of Reproduction*. 63: 383-389
- GINTHER, O.J., BERGFELT, D.R., KULICK, L.J., KOT, K. 2000b. Selection of the dominant follicle in cattle: role two-way functional coupling between follicle stimulating hormone and the follicles. *Biology of Reproduction*. 62: 920-927
- GINTHER, O.J., KASTELIC, J.P., KNOPF, L. 1989. Composition and characteristics of follicular waves during the bovine estrous cycle. *Animal Reproduction Science*. 20: 187-200.
- GINTHER, O.J., KOT, K., KULICK, L.J., WILTBANK, M.C. 1997a. Emergence and deviation of follicles during the development of follicular waves in cattle. *Theriogenology*. 48: 75-87
- GINTHER, O.J., SILVA, L.A., ARAUJO, R.R., BEG, M.A. 2007. Temporal

- associations among pulses of 13, 14-dihydro-15-keto-PGF_{2α}, luteal blood flow, and luteolysis in cattle. *Biology of Reproduction*. 76(3): 506-513
- GINTHER, O.J., WILTBANK., M.C., FRICKE, P.M., GIBBONS, J.R., KOT, K. 1996. Selection of the dominant follicle in cattle. *Biology of Reproduction*. 55: 1187-1194
- GODIN, I., DEED R., COOKE, J., ZSEBO, K., DEXTER, M., WYLIE, C.C. 1991. Effects of the steel gene product on mouse primordial germ cells in culture. *Nature*. 353: 807-809
- GONG, J.G., BRAMLEY, T., WEBB, R. 1991. The effect of recombinant bovine somatotropin on ovarian function in heifers: follicular populations and peripheral hormones. *Biology of Reproduction*. 45: 941-949
- GONG, J.G., BRAMLEY, T.A., GUTIERREZ, C.G., PETERS, A.R., WEBB, R. 1995. Effects of chronic treatment with a gonadotropin-releasing hormone agonist on peripheral concentrations of FSH and LH, and ovarian function in heifers. *Journal of Reproduction and Fertility*. 105: 263-270
- GONG, J.G., CAMPBELL, B.K., BRAMLEY, T.A., GUTIERREZ, C.G., PETERS, A.R., WEBB, R. 1996 Suppression in the secretion of follicle stimulating hormone and luteinising hormone, and ovarian follicle development in heifers continuously infused with a gonadotropin-releasing hormone agonist. *Biology of Reproduction*. 55: 68-74
- GOOSEN, N., HOEDEMAKE, M. 2006. Reproductive performance of dairy cows with relation to time of ovarian cyst formation. *Bulletin of Veterinary Institute in Pulawy*. 50: 159-161
- GOUGEON, A., DELANGLE, A., AROUCHE, N., STRIDSBERG, M., COTTELAND, J.P., LOUMAYE, E. 2010. Kit ligand and somatostatin receptor antagonist, BIM-23627, stimulate in vitro resting follicle growth in the neonatal mouse ovary. *Endocrinology*. 151(3): 1299-1309
- GRAHAM, T.W., THURMOND, M.C., GERSHWIN, M.E. 1994. Serum zinc and copper concentrations in relation to spontaneous abortion in cows: implications for human fetal loss. *Journal of Reproduction and Fertility*. 102: 253-262
- GREGORY, K.E., ECHTERNKAMP. G.E., DICKERSON, L.V., CUNDIFF, R.M., KOCH, R.M., VAN VLECK, L.D. 1990. Twinning in cattle: III. Effects of twinning on dystocia, reproductive traits, calf survival, calf growth and cow productivity. *Journal of Animal Science*. 68(10): 3133-3144
- GRIMES, R.W., MATTON P., IRELAND, J. 1987. A comparison of histological and

non-histological indices of atresia and follicular function. *Biology of Reproduction*. 37: 82-88

GRÖHN, Y.T., EICKER, S.W., DUCROCQ, V., HERTL, J.A. 1998. Effect of diseases on the culling of Holstein dairy cows in New York state. *Journal of Dairy Science*. 81(4): 966-978

GRUM, D.E., DRACKLEY, J.K., YOUNKER, R.S., LaCOUNT, D.W., VEENHUIZEN, J.J 1996. Nutrition during the dry period and hepatic lipid metabolism of peri-parturient dairy cows. *Journal of Dairy Science*. 79: 1850-1864

GRUMMER, R.R. 1993. Etiology of lipid-related metabolic disorders in periparturient dairy cows. *Journal of Dairy Science*. 76: 3882-3896

GRUMMER, R.R., 1995. Impact in changes in organic nutrient metabolism on feeding the transition dairy cow. *Journal of Animal Science*. 73: 2820-2833

GRUMMER, R.R., CARROL, D.J. 1988. A review of lipoprotein cholesterol metabolism: Importance to ovarian function. *Journal of Animal Science*. 66: 3160-3173

GUGLIELMO, M.C., RICCI, G., CATIZONE, A., BARBERI, M., GALDIERI, M., STEFANI, M., CANIPARI, R. 2010. The effect of hepatocyte growth factor on the initial stages of mouse follicle development. *Journal of Cellular Physiology*. (Epub ahead of print)

GUTIERREZ, C.G., RALPH, J.H., TELFER, E.E., WILMUT, I., WEBB, R. 2000. Growth and antrum formation of bovine antral follicles in long-term culture in vitro. *Biology of Reproduction*. 62: 1322-1328

HAMILTON, S.A., GARVERICK, H.A., KEISLER, D.H., XU, Z.Z., LOOS, K., YOUNGQUIST, R.S., SALFEN, B.E. 1995. Characterisation of ovarian follicular cysts and associated endocrine profiles in dairy cows. *Biology of Reproduction*. 53: 890-898

HAYASHI, M., McGEE, E.A., MIN, G., KLEIN, C., ROSE, U.M., van DUIN, M. 1999. Recombinant growth differentiation factor-9 (GDF-9) enhances growth and differentiation of cultured early ovarian follicles. *Endocrinology*. 140(3): 1236-1244

HENDERSON, K.M., FRANCHIMONT, K.M. 1981. Regulation of inhibin production by bovine ovarian cells in vitro. *Journal of Reproduction and Fertility*. 63: 431-442

HENDERSON, K.M., FRANCHIMONT, P., CHARLET-RENARD, C., McNATTY, K.P. 1984. Effect of follicular atresia on inhibin production by bovine granulosa cells in vitro and inhibin concentrations in the follicular fluid. *Journal of Reproduction and Fertility*. 72:1-8

- HENDERSON, K.M., McNATTY, K.P. 1975. A biochemical hypothesis to explain the mechanism of luteal regression. *Prostaglandins*. 9(5): 779-797
- HENDERSON, K.M., MOON, Y.S. 1979. Luteinization of bovine granulosa cells and corpus luteum formation associated with loss of androgen aromatizing ability. *Journal of Reproduction and Fertility*. 56: 89-97
- HERDT, T.H., WENSING, T., HAAGSMAN, H.P., van GOLDE, L.M.G., BREUKINK, H.J. 1988. Hepatic triacylglycerol synthesis during a period of fatty liver development in sheep. *Journal of Animal Science*. 66: 1997-2013
- HEUER, C., SCHUKKEN, Y.H., DOBBELAAR, P. 1998. Postpartum body condition score and results from the first test day milk as predictors of disease, fertility, yield and culling in commercial dairy herds. *Journal of Dairy Science*. 295-304
- HIRSHFIELD, A.N. 1991. Development of follicles in the mammalian ovary. *International Review of Cytology*. 124: 43-101
- HOOIJER, G.A., FRANKENA, K., VALKS, M.M.H., SCHURING, M. 1999. Treatment of cystic ovarian disease in dairy cows with gonadotropin releasing hormone: A field study. *Veterinary Quarterly*. 21(1): 33-37 (abstract only)
- HSEUH, A.J.W., BILLING, H., TSAFRIRI, A. 1994. Ovarian follicle atresia: A hormonally controlled apoptotic process. *Endocrine Reviews*. 15(6): 707-724
- HUDSON, C.D., BREEN, J.E., BRADLEY, A.J., GREEN, M.J. 2010. Fertility in UK dairy herds: Preliminary findings of a large scale study. *Cattle Practice*. 18(1): 89-94
- HUSSAIN, A.M., DANIEL, R.C.W. 1991. Bovine endometritis: Current and future alternative therapy. *Journal of Veterinary Medicine Series A*. 38: 641-651
- HUSSEIN, T.S., FROILAND, D.A., AMATO, F., THOMPSON, J.G., GILCHRIST, R.B. 2005. Oocytes prevent cumulus cell apoptosis by maintaining a morphogenic paracrine gradient of bone morphogenic proteins. *Journal of Cell Science*. 118: 5257-5268
- HUXLEY, J. 2004. Optimising health, productivity and welfare of dairy cattle: on farm nutrition. *In Practice*. 26(9): 466-475
- IRVING-RODGERS, H.F., CATANZARITI, K.D., MASTER, M., GRANT, P.A., OWENS, P.C., RODGERS, R.J. 2003a. Insulin-like growth factor binding proteins in follicular fluid from morphologically distinct healthy and atretic bovine antral follicles. : 15: 241-248

- IRVING-RODGERS, H.F., KRUPA, M., RODGERS, R.J. 2003b. Cholesterol side-chain cleavage cytochrome P450 and 3 β -hydroxysteroid dehydrogenase expression and the concentrations of steroid hormones in the follicular fluids of different phenotypes of healthy and atretic bovine ovarian follicles. *Biology of Reproduction*. 69: 2022-2028
- IRVING-RODGERS, H.F., van WEZEL, I.L., MUSSARD, M.L., KINDER, J.E., RODGERS, R.J. 2001. Atresia revisited: two basic patterns of atresia of bovine antral follicles. *Reproduction*. 122: 761-775
- ISMAIL, R.S., OKAWARA, Y., FRYER, J.N., VANDERHYDEN, B.C. 1996. Hormonal regulation of the ligand for c-kit in the rat ovary and its effects on spontaneous oocyte meiotic maturation. *Molecular Reproduction and Development*. 43: 458-469
- JACKSON, R.A., WILLS, J.R., KENDALL, N.R., GREEN, M.J., MURRAY, R.D., DOBSON, H. 2011. Energy metabolites in pre- and postpartum dairy cattle as predictors of reproductive disorders. *Veterinary Record*. 168: 562-567
- JEFFS, J., MURPHY, D., GLENNON, A. 2011. NOAH Drug Compendium. Enfield. National Office of Animal Health Ltd.
- JOHNSON, A.D., ULBERG, L.C. 1967. Influence of exogenous progesterone on follicular cysts in dairy cattle. *Journal of Dairy Science*. 50: 758-761
- JOLLY, P.D., TISDALL, D.J., HEATH, D.A., LUN, S., MCNATTY, K.P. 1994. Apoptosis in bovine granulosa cells in relation to steroid synthesis, cyclic adenosine 3', 5'-monophosphate response to follicle stimulating hormone and luteinising hormone, and follicular atresia. *Biology of Reproduction*. 51: 934-944
- JORRITSMA, R., WENSING, T., KRUIP, T.A.M., VOS, P.L.A.M., NOORDHUIZEN, J.P.T.M. 2003. Metabolic changes in early lactation and impaired reproductive performance in dairy cows. *Veterinary Research*. 34(1): 11-26
- KAIPIA, A., HSUEH, A.J.W. 1997. Regulation of Ovarian Follicle Atresia. *Annual Review of Physiology*. 59: 349-363
- KANEKO, H., KISHI, H., WATANABE, G., TAYA, K., SASAMOTO, S., HASEGAWA, Y. 1995. Changes in plasma concentrations of immunoreactive inhibin, estradiol and FSH associated with follicular waves during the estrous cycle of the cow. *Journal of Reproduction and Development*. 41(4): 311-320
- KANEKO, H., TAYA, K., WATANABE, G., NOGUCHI, J., KIKUCHI, K., SHIMADA, A., HASEGAWA, Y. 1997. Inhibin is involved in the suppression of FSH

secretion in the growth phase of the dominant follicle during the early luteal phase in cows. *Domestic Animal Endocrinology*. 14: 263-271

KASTELIC, J.P., KO, J.C., GINTHER, O.J. 1990. Suppression of dominant and subordinate ovarian follicles by a proteinaceous fraction of follicular fluid in heifers. *Theriogenology*. 34(3): 499-509

KESLER, D.J., ELMORE, R.G., BROWN, E.M., GARVERICK, H.A. 1981. Gonadotropin releasing hormone treatment of dairy cows with ovarian cysts. I. Gross ovarian morphology and endocrinology. *Theriogenology*. 16(2): 207-217

KESLER, D.J., GAVERICK, H.A., 1982. Ovarian cysts in dairy cattle: A review. *Journal of Animal Science*. 55: 1147-1159

KESSEL, S., STROEHL, M., MEYER, H.H.D., HISS, S., SAUERWEIN, H., SCHWARZ, F.J., BRUCKMAIER, R.M. 2008. Individual variability in physiological adaptation to metabolic stress during early lactation in dairy cows kept under equal conditions. *Journal of Animal Science*. 86: 2903-2912

KIM, K.D., KI, K.S., KANG, H.G., KIM, I.H. 2005. Risk factors and the economic impact of ovarian cysts on reproductive performance of dairy cows in Korea. *Journal of Reproduction and Development*. 51(4): 491-498

KINDAHL, H., LINDELL, J.O., EDQVEST, L.E. 1981. Release of prostaglandin F2 alpha during the oestrus cycle. *Acta Veterinaria Scandinavica*. Supplement. 77: 143-158: Cited in BALL, P.J.H., PETERS, A.R. 2004. *Reproduction in the Cattle*. Blackwell Publishing. Oxford. pp 51.

KINSEL, M.L., ETHERINGTON, W.G. 1998. Factors affecting reproductive performance in Ontario dairy herds. *Theriogenology*. 50(8): 1221-1238

KINSEL, M.L., MARSH, W.E., RUEGG, P.L., ETHERINGTON, W.G. 1998. Risk factors for twinning in dairy cows. *Journal of Dairy Science*. 81: 989-993

KNIGHT, P.G., GLISTER, C. 2006. TGF- β superfamily members and ovarian follicle development. *Reproduction Review*. 132: 191-206

KOTSUJI, F., KAMITANI, N., GOTO, K., TOMINAGA, T. 1990. Bovine theca and granulosa cell interactions modulate their growth, morphology and function. *Biology of Reproduction*. 43: 726-732

KULICK, L.J., KOT, K., WILTBANK, M.C., GINTHER, O.J. 1999. Follicular and hormonal dynamics during the first follicular wave in heifers. *Theriogenology*. 52: 913-921

- LANE, E.A., SWEENEY, T., RYAN, M., ROCHE, J.F., CROWE, M.A. 2009. Relationship between serum gonadotropins and pituitary immunoreactive gonadotropins and steroid receptors during the first FSH increase of the estrous cycle and following steroid treatment in heifers. *Animal Reproduction Science*. 112(1-2): 66-82
- LARON, Z. 2001. Insulin-like growth factor 1 (IGF-1): a growth hormone. *Journal of Clinical Pathology: Molecular Pathology*. 54: 311-316
- LARSON, R.L. 2011. The bovine estrous cycle and synchronization of estrus [online] available at http://www.vet.ksu.edu/studentorgs/bovine/pdf/Synchronization_Systems1.pdf [accessed 1st March 2011]
- LeROITH, D., CLEMMONS, D., NISSLEY, P., RECHLER, M.M. 1992. Insulin-like growth factors in health, and disease. *Annals of Internal Medicine*. 116:854-862
- LEROY J.L.M.R., VAN SOOM, A., OPSOMER G., BOLS, P.E.J. 2008. The consequences of metabolic changes in high yielding dairy cows on oocyte and embryo quality. *Animal*. 2.8: 1120-1127
- LI, X.B., ZHANG, Z.G., LIU, G.W., WANG, H.B., LI, Y.F., GAO.L., WANG, Z. 2011. Renal function of dairy cows with subclinical ketosis. Published online.
- LIPTRAP, R.M., McNALLY, P.J. 1976. Steroid concentrations in cows with corticotropin induced cystic follicles and the effect of prostaglandin F₂alpha and indomethacin by intrauterine injection. *American Journal of Veterinary Research*. 37(4): 369-375
- LLEWELLYN, S., FITZPATRICK, R., KENNY, D.A., MURPHY, J.J., SCARAMUZZI, R.J., WATHES, D.C. 2007. Effect of negative energy balance on the insulin-like growth factor system in pre-recruitment ovarian follicles of post partum dairy cows. *Reproduction*. 133: 627-639
- LOPES, A.S., BUTLER, S.T., BILBERT, R.O., BUTLER, W.R. 2007. Relationship of pre-ovulatory follicle size, estradiol concentrations and season to pregnancy outcome in dairy cows. *Animal Reproduction Science*. 99(1): 34-43
- LÓPEZ-GATIUS, F. 2003. Is fertility declining in dairy cattle? A retrospective study in northeastern Spain. *Theriogenology*. 60(1): 89-99
- LÓPEZ-GATIUS, G., SANTOLARIA, P., YÁNIZ, J., FENECH, M., LÓPEZ-BÉJAR, M. 2002. Risk factors for postpartum ovarian cysts and their spontaneous recovery or

- persistence in lactating dairy cows. *Theriogenology*. 58: 1623-1632
- LORENZEN, J.R., CHANNING, C.P., SCHWARTZ, N.B. 1978. Partial characterisation of FSH suppressing activity (folliculostatin) in porcine follicular fluid using the metestrous rat as an in vivo bioassay model. *Biology of Reproduction*.19: 635-640
- LOUCA, A., LEGATES, J.E. 1968. Production losses in dairy cattle due to days open. *Journal of Dairy Science*. 51(4): 573-577
- LUCY, M.C., STAPLES, C.R., MICHEL, F.M., THATCHER, W.W. 1990. Energy balance and size and number of ovarian follicles detected by ultrasonography in early postpartum dairy cows. *Journal of Dairy Science*. 74(2): 473-482
- MANABE, N., MATSUDA-MINEHATA, F., GOTO, Y., MAEDA, A., CHENG, Y., NAKAGAWA, S., INOUE, N., WONGPANIT, K., JIN, H., GONDA, H., LI, J. 2008. Role of cell death ligand and receptor system on regulation of follicular atresia in pig ovaries. *Reproduction in Domestic Animals*. 43(suppl. 2): 268-272
- MÄNTYSAARI, E.A., GRÖHN, Y.T., QUAAS, R.L. 1993. Repeatability and heritability of lactational occurrence of reproductive disorders in dairy cows. *Preventive Veterinary Medicine*. 17: 111-125
- MARCEK, J.K., APPELL, L.H., HOFFMAN, C.C., MOREDICK, P.T., SWANSON, L.V. 1985. Effect of supplemental beta-carotene on incidence and responsiveness of ovarian cysts to hormone treatment. *Journal of Dairy Science*. 68(1): 71-77
- MARION, G.B., GIER, H.T. 1971. Ovarian and uterine embryogenesis and morphology of the non-pregnant female mammal. *Journal of Animal Science*. 32 (suppl.1): 24-47
- MARION, G.B., GIER, H.T., CHOUDARY, J.B. 1968. Micromorphology of the bovine ovarian follicular system. *Journal of Animal Science*.27: 451-465
- MARTIN, T.L., FOGWELL, R.L., IRELAND, J.J. 1991. Concentrations of inhibins and steroids in follicular fluid during development of dominant follicles in heifers. *Biology of Reproduction*. 44: 693-700
- MATEUS, L., COSTA DA LOPES, L., BERNARDO, F., ROBALO SILVA, J. 2002. Influence of puerperal uterine infection on uterine involution and postpartum ovarian activity in dairy cows. *Reproduction in Domestic Animals*. 37: 31-35
- MAZERBOURG, S., ZAPF, J., BAR, R.S., BRIGSTOCK, D.R., MONGET, P. 2000. Insulin-like growth factor (IGF)-binding protein -4 proteolytic degradation in bovine,

- equine and porcine preovulatory follicles: regulation by IGFs and heparin-binding domain-containing peptides. *Biology of Reproduction*. 63: 390-400
- McCAFFERY, F.H., LEASK, R., RILEY, S.C., TELFER, E.E. 2000. Culture of bovine preantral follicles in a serum-free system: markers for assessment of growth and development. *Biology of Reproduction*. 63:267-273
- McCARTHY, S.D., WATERS, S.M., KENNY, D.A., DISKIN, M.G., FITZPATRICK, R., PATTON, J., WATHES, D.C., MORRIS, D.G. 2010. Negative energy balance and hepatic gene expression patterns in high yielding dairy cows during the early postpartum period: a global approach. *Physiological Genomics*. 42A(3): 188-199
- McENTEE, K. 1958. Cystic corpora lutea in Cattle. *International Journal of Fertility*. 2: 120-127
- McGUIRK, B. 2004. Breeding for improved cattle fertility. *Farm Animal Practice*. 26: 272-275
- McNATTY, K.P., HEATH, D.A., HENDERSON, K.M., LUN, S., HURST, P.R., ELLIS, L.M., MONTGOMERY, G.W., MORRISON, L., THURLEY, D.C. 1984. Some aspects of thecal and granulosa cell function during follicular development in the bovine ovary. *Journal of Reproduction and Fertility*. 72: 39-53
- McNATTY, K.P., HUDSON, N.L., GIBB, M., BALL, K., HENDERSON, K.M., HEATH, D.A., LUN, S., KIEBOOM, L.E. 1985. FSH influences follicle viability, oestradiol biosynthesis and ovulation rate in the Romney ewes. *Journal of Reproduction and Fertility*. 75: 121-131
- McNATTY, K.P., LUN, S.A., HEATH, D.A., HENDERSON, K.M., KIEBOOM, L.E. 1986. Steroidogenesis *in vitro* by the theca interna. In Eshkol, A., Eckstein, b., Dekel, N., Peters, H and Tsafri, A. (eds) *Development and Function of the Reproductive Organs*, pp:265-277. (Rome: Serono Symposia Review No.11)
- McNATTY, K.P., MOORE-SMITH, D.A., MAKRIS, A., OSATHANONDH, R., RYAN, K. 1979. The microenvironment of the human follicle: interrelationships among steroid levels in antral fluid, the population of granulosa cells and the status of the oocyte in vivo and in vitro. *Journal of Clinical Endocrinology and Metabolism*. 49: 851- 860
- McNATTY, K.P., SMITH, P., HUDSON, N.L., HEATH, D.A., LUN, S., O, W.S. 1992. Follicular development and steroidogenesis. In *Local regulation of ovarian function*. (Eds N-O. Sjoberg, L. Hamberger, P.O. Janson, C. Owman and H.J.T.

- Coelingh-Bennink) pp 21-38. The Parthenon Publishing Group, Lancashire, UK
- McNEILY, A.S. 2002. The generation of the pre-ovulatory LH surge. *Endocrine Abstracts*.3: 57
- MEDAN, M.S., TAKEDOM, T., AOYAGI, Y., KONISHI, M., YAZAWA, S., WATANABE, G., TAYA, K. 2006. The effect of active immunisation against inhibin on gonadotropin secretions and follicular dynamics during the estrous cycle in cows. *Journal of Reproduction and Development*. 52(1): 107-113.
- MERRIAM, G.R., WACHTER, K.W. 1982. Algorithms for the study of episodic hormone secretion. *American Journal of Physiology*. 243: E310-E318
- MIHM, M., CURRAN, N., HYTTEL, P., KNIGHT, P.G., BOLAND, M.P., ROCHE, J.F. 1999. Effect of dominant follicle persistence on follicular fluid oestradiol and inhibin and on oocyte maturation in heifers. *Journal of Reproduction and Fertility*. 116: 293-304
- MIHM, M., AUSTIN, E.J., GOOD, T.E.M., IRELAND, J.L.H., KNIGHT, P.G., ROCHE, J.F., IRELAND, J.J. 2000. Identification of potential intra-follicular factors involved in selection of dominant follicles in heifers. *Biology of Reproduction*. 63:811-819
- Milk Development Council. 2006. Endocrine Management of Bovine Infertility - Final Report. Ref: 99/T2/33
- MILLAR, R.P. 2005. GnRHs and GnRH receptor. *Animal Reproduction Science*. 88: 5-28
- MONDAL, S., PRAKASH, B.P., PALTA, P. 2008. Relationship between peripheral plasma inhibin and FSH concentrations in Sahiwal cows (*Bos indicus*) and Murrah buffaloes (*Bubalus bubalis*) during estrous cycle. *Tropical Animal Health and Production*. 40(6): 403-406
- MONGET P., FABRE, S., MULSANT, P., LECERF, F., ELSEN, J.M., MAZERBOURG, S., PISSELET, C., MONNIAUX, D. 2002. Regulation of ovarian folliculogenesis by IGF and BMP system in domestic animals. *Domestic Animal Endocrinology*. 23: 139-154
- MONGET, P., BONDY, C. 2000. Importance of the IGF system in early folliculogenesis. *Molecular and Cellular Endocrinology*. 163: 89-93
- MONGET, P., MONNIAUX, D. 1995. Growth factors and the control of folliculogenesis. *Journal of Reproduction and Fertility Supplement* 49: 321-333

- MONNIAUX, D., PISSELET, C. 1992. Control of proliferation and differentiation of ovine granulosa cells by insulin like growth factor-I and follicle-stimulating hormone in vitro. *Biology of Reproduction*. 46: 109-119
- MORROW, D. 1975. Fat cow syndrome. *Journal of Dairy Science*. 59(9): 1625-1629
- MOTTA, P., NOTTOLA, S.A., FAMILIARI, G., MACCHIARELLI, G., VIZZA, E. 1991. Follicular structures: an ultrastructural study by scanning and transmission electron microscopy and correlated techniques. In *Local regulation of ovarian function*. (Eds N-O. Sjoberg, L. Hamberger, P.O. Janson, C. Owman and H.J.T. Coelingh-Bennink)pp 21-38. The Parthenon Publishing Group, Lancashire, UK
- MUELLER, K. 2007. Cystic ovarian disease in cows-diagnosis and treatment decisions. *UK Vet*. 13(1): 46-51
- MUKHERJEE, G., FREEMAN, A., MOORE, R., KUMARASWAMY, R., DEVI, K.U., MORRIS, L.S., COLEMAN, N., DILWORTH, S., PRABAKARAN, P.S., STANLEY, A. 2001. Biologic factors and response to radiotherapy in carcinoma of the cervix. *International Journal of Gynaecological Cancer*. 11(3): 187-193
- MULLIGAN, F., O'GRADY, L., RICE, D., DOHERTY, M. 2006. Production disease of the transition cow: Body condition score and energy balance. *Irish Veterinary Journal*. 59(9): 505-510
- NAKAO, T., SUGIHASHI, A., SAGA, N., TSUNODA, N., KAWATA, K. 1983. Use of milk progesterone enzyme immunoassay for differential diagnosis of follicular cysts, luteal cyst, and cystic corpus luteum in cows. *American Journal of Veterinary Research*. 44(5): 888-890
- NAKAO, T., TSURUBAYASHI, M., HORIUCHI, S., NOMURA, T., ISHIBASHI, Y., KUBO, M., KAWATA, K. 1979. Effects of a systematic application of human chorionic gonadotropin, gonadotropin-releasing hormone analogue and bovine anterior pituitary gonadotropin in cows with cystic ovarian disease. *Theriogenology*. 11(5): 385-397
- NANDA, A.S., WARD, W.R., DOBSON, H. 1989. The relationship between milk yield and cystic ovarian disease in cattle. *British Veterinary Journal*. 145(1): 39-45
- NANDA, A.S., WARD, W.R., WILLIAMS, P.C., DOBSON, H. 1988. Retrospective analysis of the efficacy of different hormone treatments of cystic ovarian disease in cattle. *Veterinary Record*. 122:155-158 (abstract only)
- NEBEL, R.L. 1988. On-farm milk progesterone test. *Journal of Dairy Science*. 71(6):

1682-1690

NEUFELD, G., FERRARA, N., SCHWEIGERER, L., MITCHELL, R., GOSPODAROWICZ, D. 1987. Bovine granulosa cells produce basic fibroblast growth factor. *Endocrinology*. 121:597-603

NIELEN, M., SCHUKKEN, Y.H., SCHOLL, D.T., WILBRINK, H.J., BRAND, A. 1989. Twinning in dairy cattle: A study of risk factors and effects. *Theriogenology*. 32(5): 845-862

NILSSON, E., PARROTT, J.A., SKINNER, M.K. 2001. Basic fibroblastic growth factor induces primordial follicle development and initiates folliculogenesis. *Molecular and Cellular Endocrinology*. 175(1-2): 123-130

NILSSON, E., SKINNER, M.K. 2001. Cellular interactions that control primordial follicle development and folliculogenesis. *Journal of the Society for Gynaecologic Investigation*. 8 (1 Suppl Proceedings): S17-20

OKANO, A., TOMIZUKA, T. 1987. Ultrasonic observation of postpartum uterine involution in the cow. *Theriogenology*. 27(2): 369-376

ORISAKA, M., MIZUTANI, T., TAJIMA, K., ORISAKA, S., SHUKUNAMI, K., MIYAMOTO, K., KOTSUJI, F. 2006. Effects of ovarian theca cells on granulosa cell differentiation during gonadotropin-independent follicular growth in cattle. *Molecular Reproduction and Development*. 73: 737-744

ORISAKA, M., TAJIMA, K., MIZUTANI, T., MIYAMOTO, K., TSANG, B.K., FUKUDA, S., YOSHIDA, Y., KOTSUJI, F. 2006b. Granulosa cells promote differentiation of cortical stromal cells into theca cells in the bovine ovary. *Biology of Reproduction*. 75(5): 737-740

ORISAKA, M., TAJIMA, K., TSANG, B.K., KOTSUJI, F. 2009. Oocyte-granulosa-theca cell interactions during pre-antral follicular development. *Journal of Ovarian Research*. 2(1): 9-15

OSPINA, P.A., NYDAM, D.V., STOKOL, T., OVERTON, T.R. 2010. Evaluation of non-esterified fatty acids and beta-hydroxybutyrate in transition dairy cattle in the northeastern United States: Critical thresholds for prediction of clinical diseases. *Journal of Dairy Science*. 93(2): 546-554

OUELLETTE, Y., PRICE, C.A., CARRIÈRE, P.D. 2005. Follicular fluid concentration of transforming growth factor- β 1 is negatively correlated with estradiol and follicle size at the early stage of development of the first-wave cohort of bovine

- ovarian follicles. *Domestic Animal Endocrinology*. 29: 623-633
- OVERTON, T.R., DRACKLEY, J.K., OTTEMANN-ABBAMONTE, C.J., BEAULIEU, A.D., EMMERT, S.L., CLARK, J.H. 1999. Substrate utilisation for hepatic gluconeogenesis is altered by increased glucose demand in ruminants. *Journal of Animal Science*. 77: 1940-1951
- PACKER, A.I., HSU, Y.C., BESMER, P., BACHWAROVA, R.F. 1994. The ligand of the c-kit receptor promotes oocyte growth. *Developmental Biology*. 161: 194-205
- PARROTT, J.A., SKINNER, M.K. 1997a. Direct actions of KL on theca cell growth and differentiation during follicle development. *Endocrinology*. 138: 3819-3827
- PARROTT, J.A., SKINNER, M.K. 1997b. Thecal cell-granulosa cell interactions involve a positive feedback loop among keratinocyte growth factor, hepatocyte growth factor, and Kit ligand during ovarian follicular development. *Endocrinology*. 139(5): 2240-2245
- PARROTT, J.A., SKINNER, M.K. 1997c. Developmental and hormonal regulation of keratinocyte growth factor (KGF) expression and action in the ovarian follicle. *Endocrinology*. 139: 228-235
- PARROTT, J.A., SKINNER, M.K. 1998. Developmental and hormonal regulation of hepatocyte growth factor (HGF) expression and action in the ovarian follicle. *Biology of Reproduction*. 59: 553-560
- PARROTT, J.A., SKINNER, M.K. 1999. Kit-ligand/stem cell factor induces primordial follicle development and initiates folliculogenesis. *Endocrinology*. 140: 4262-4271
- PATTON, J., KENNY, D.A., McNAMARA, S., MEE, J.F., O'MARA, F.P., DISKIN, M.G., MURPHY, J.J. 2007. Relationships among milk production, energy balance, plasma analytes, and reproduction in Holstein-Friesian cows. *Journal of Dairy Science*. 90: 649-658
- PAYNE, E., SMITH, J.F., COPE, B.C., McGOWAN, L.T. 1991. Studies on the role of liver cytochrome P450 and oestradiol metabolism in the effects of nutrition and phenobarbital on ovulation rate in ewe. *Reproduction, Fertility and Development*. 3(6): 725-736
- PERKS, C.M., PETERS, A.R., WATHES, D.C. Follicular and luteal expression of insulin-like growth factors I and II and the type 1 IGF receptor in the bovine ovary. *Journal of Reproduction and Fertility*. 116: 157-165
- PETER, A.T. 2004. An update on cystic ovarian degeneration in cattle. *Reproduction in*

Domestic Ruminants. 39(1): 1-7

PETERS, A.R., LAMMING, G.E. 1983. Hormone patterns and reproduction in cattle. *In Practice*. 5: 153-157

PIERSON, R.A., GINTHER O.J. 1988. Ultrasonic imaging of the ovaries and the uterus in cattle. *Theriogenology*. 29: 21-37

PIERSON, R.A., KASTELIC, J.P., GINTHER O.J. 1988. Basic principles and techniques for transrectal ultrasonography in cattle and horses. *Theriogenology*. 29(1): 3-20

PORTER, D.A., HARMAN R.M., COWAN, R.G., QUIRK, S.M. 2001. Susceptibility of ovarian granulosa cells to apoptosis differs in cells isolated before or after the pre-ovulatory LH surge. *Molecular and Cellular Endocrinology*. 176: 13-20

PORTER.D.A., HARMAN, R.M., COWAN, R.G., HUBER, S.C., QUIRK, S.M. 2000. Expression and function of Fas antigen vary in bovine granulosa and theca cells during ovarian follicular development and atresia. *Biology of Reproduction*. 62:62-66

QUBLAN, H.S., AMARIN, Z., TAHAT, Y.A., SMADI, A.Z., KILANI, M. 2006. Ovarian cyst formation following GnRH agonist administration in IVF cycles: incidence and impact. *Human Reproduction*. 21(3): 640-644

QUIRK, S.M., COWAN, R.G. HARMAN, R.M., HU, C.L., PORTER, D.A 2004. Ovarian follicular growth and atresia: the relationship between cell proliferation and survival. *Journal of Animal Science*. 82: E40-E52

RALPH, J.H., TELFER, E.E., WILMUT, I. 1995. Bovine cumulus cell expansion does not depend on the presence of an oocyte-secreted factor. *Molecular Reproduction and Development*. 42(2): 248-253

RAJAKOSKI, E. 1960. The ovarian follicular system in sexually mature heifers with special reference to seasonal, cyclical, and left-right variations. *Acta Endocrinologica*. 34: 1-68

REIST, M., ERDIN, D., von EUW, D., TSCHUEMPERLIN, K., LEUENBERGER, H., CHILLIARD, Y., HAMMON, H.M., MOREL, C., PHILIPONA, C., ZBINDEN, Y., KUENZI, N., BLUM, J.W. 2002. Estimation of energy balance at the individual and herd level using blood and milk traits in high-yielding dairy cows. *Journal of Dairy Science*. 3314-3327

RIBADU, A.Y., NAKADA, K., MORIYOSHI, M., ZHANG, W.C., TANAKA, Y., NAKAO, T. 2000. The role of LH pulse frequency in ACTH-induced ovarian follicular

- cysts in heifers. *Animal Reproduction Science*. 64(1-2): 21-31
- RIBADU, A.Y., WARD, W.R., DOBSON, H. 1994. Comparative evaluation of ovarian structures in cattle by palpation per rectum, ultrasonography and plasma progesterone. *Veterinary Record*. 135: 452-457
- ROBERTS, S. J. 1971. *Veterinary Obstetrics and Genital Diseases* (2nd Ed.). Published by the author. Ithaca, N. Y. USA.
- ROBINSON, R.S., HUNTER, M.G., MANN, G.E. 2006. Supra-basal progesterone concentrations during the follicular phase are associated with development of cystic follicles in dairy cows. *The Veterinary Journal*. 172(2): 340-346
- ROCHE, J.F., MACKEY, D., DISKIN, M.D. 2000. Reproductive management of postpartum cows. *Animal Reproduction Science*. 60-61: 703-712
- RODGERS, R.J., IRVING-RODGERS, H.F. 2010. Morphological classification of bovine ovarian follicles. *Reproduction*. 139: 309-318
- RODGERS, R.J., IRVING-RODGERS, H.F., van WEZEL, I.L., KRUPA, M., LAVRANOS, T.C. 2001. Dynamics of the membrana granulosa during expansion of the ovarian follicular antrum. *Molecular and Cellular Endocrinology*. 171: 41-48.
- RODGERS, R.J., RODGERS, H.F., HALL, P.F., WATERMAN, M.R., SIMPSON, E.R. 1986. Immunolocalisation of cholesterol side chain cleavage cytochrome P450 and 17 alpha-hydroxylase cytochrome P450 in bovine ovarian follicles. *Journal of Reproduction and Fertility*. 78(2): 627-638
- ROENFELDT, S. 1998. You can't afford to ignore heat stress. *Dairy Management*. 35(5): 6-12
- ROLAKI, A, DRAKAKIS, P., MILINGOS, S., LOUTRADIS, D., MAKRIGIANNAKIS, A. 2005. Novel trends in follicular development, atresia and corpus luteum regression: a role for apoptosis. 11 (1): 93-103
- ROTH, Z., MEIDAN, R., BRAW-TAL, R., WOLFENSON, D. 2000. Immediate and delayed effects of heat stress on follicular development and its association with plasma FSH and inhibin concentration in cows. *Journal of Reproduction and Fertility*. 120: 83-90
- ROTH, Z., MEIDAN, R., SHAHAM-ALBALANCY, A., BRA-TAL, R., WOLFENSON, D. 2001. Delayed effect of heat stress on steroid production in medium-sized and pre-ovulatory bovine follicles. *Reproduction*. 121: 745-751
- RUIZ, F.J., OLTENACU, P.A., SMITH, R.D. 1992. Cost-benefit evaluation of on farm

- milk progesterone testing to monitor return to cyclicity and to classify ovarian cysts. *Journal of Dairy Science*. 75(4): 1036-1043
- RUKKWAMSUK, T., WENSING, T., KRUIP, T.A.M. 1998. Relationship between triacylglycerol concentration in the liver and first ovulation in postpartum dairy cows. *Theriogenology*. 51: 1133-1142
- RUSSEL, A.J., DONEY, J.M., REID, R.L. 1967. Energy requirements of the pregnant ewe. *The Journal of Agricultural Science*. 68(3): 359-363
- SAKAMOTO, K., MIWA, K., EZASHI, T., OKUDA, ASHITAKA, E., OKUDA, K., HOUTANI, T., SUGIMOTOT, T., ITO, S., HAYAISHI, O. 1995. Expression on mRNA encoding the prostaglandin F₂ α receptor in bovine corpora lutea throughout the oestrous cycle and pregnancy. *Journal of Reproduction and Fertility*. 103: 99-105
- SANGHA, G.K., SHARMA, R.K., GURAYA, S.S. 2002. Biology of corpus luteum in small ruminants. *Small Ruminant Research*. 43(1): 53-64
- SANGSRITAVONG, S., COMBS, D.K., SARTORI, R., ARMENTANO, L.E., WILTBACNK, M.C. 2002. High feed intake increases liver blood flow and metabolism of progesterone and oestradiol 17 beta in dairy cattle. *Journal of Dairy Science*. 85(11): 2831-2842
- SARGISON, N.D., SCOTT, P.R., PENNY, C.D., PIRIE, R.S., KELLY, J.M. 1994. Plasma enzymes and metabolites as potential prognostic indices of ovine pregnancy toxemia – A preliminary study. *British Veterinary Journal*. 150: 271-277
- SAROTRI, R., FRICKE, P.M., FERREIRA, J.C.P., GINTHER, O.J., WILTBANK, M.C. 2001. Follicular deviation and acquisition of ovulatory capacity in bovine follicles. *Biology of Reproduction*. 65: 1403-1409
- SATTLER, T., FÜRLLE, M. 2004. Creatine kinase and aspartate aminotransferase in cows indicators for endometritis. *Journal of Veterinary Medicine Series A*. 51(3): 132-137
- SAVIO, J.D., KEENAN, L., BOLAND, M.O., ROCHE, J.F. 1988. Pattern of growth of dominant follicles during the oestrous cycle of heifers. *Journal of Reproduction and Fertility* 83: 63–671
- SAVIO, J.D., BONGERS, H., DROST, M., LUCY, M.C., THATCHER, W.W. 1991. Follicular dynamics and super ovulatory response in Holstein cows treated with FSH-P in different endocrine status. *Theriogenology*. 35(5): 915-929
- SCARAMUZZI, R.J., ADAMS, N.R., BAIRD, D.T., CAMPBELL, B.K., DOWNING,

- J.A., FINDLAY, J.K., HENDERSON, K.M., MARTIN, G.B., McNATTY, K.P., McNEILLY, A.S., TSONIS, C.G. 1993. A model for follicle selection and the determination of ovulation rate in the ewe. *Reproduction, Fertility and Development*. 5: 459-478
- SCARAMUZZI, R.J., BAIRD, D.T., CAMPBELL, B.K., DRAIN COURT, M-A., DUPONT, J., FORTUNE, J.E., GILCHRIST, R.B., MARTIN, G.B., McNATTY, K.P., McNEILLY, A.S., MONGET, P., MONNIAUX, D., VINOLES, C., WEBB, R. 2011. Regulation of folliculogenesis and the determination of ovulation rate in ruminants. *Reproduction Fertility and Development*. 23: 444-467
- SCHERZER, J., GHUMAN, S.P.S. POPE, M., ROUTLY, J.E., WALTER, I., SMITH, R.F., DOBSON, H. 2009. Follicle and oocyte morphology in ewes after treatment with insulin in the late follicular phase. *Theriogenology*. 71: 817-828
- SCHNEYER, A.L., FUJIWARA, T., FOX, J., WELT, .K., ADAMS, J., MESSERLIAN, G.M., TAYLOR, A.E. 2000. Dynamic changes in the intra-follicular inhibin/activin/follistatin axis during human follicular development: relationship to circulating hormones. *Journal of Clinical Endocrinology and Metabolism*. 85: 3319-3330
- SCHOLL, D.T., BONDURANT, R.H., FARVER, T.B. 1990. Eleven-year analysis of changes in the incidence and recurrence of cystic ovarian disease in a herd of dairy cattle in California. *American Journal of Veterinary Research*. 51(2): 314-319
- SEIFI, H.A., DALIR-NAGHADEH, B., FARZANEH, N., MOHRI, M., GORJIDOOZ, M. 2007. Metabolic Changes in Cows with or without retained fetal membranes in transition period. *Journal of Veterinary Medicine Series A*. 54: 92-97
- SENGER.P.L. 2005. Pathways to pregnancy and parturition. Second revised edition. Washington. Current Conceptions Inc.
- SHELDON, I.M., LEWIS, G.S., LeBLANC, S., GILBERT, R.O. 2006. Defining postpartum uterine disease in cattle. *Theriogenology*. 65: 1516-1530
- SHIMIZU, T., MURAYAMA, C., SUDO, N., KAWASHIMA, C., TETSUKA, M., MIYAMOTO, A. 2008. Involvement of insulin and growth hormone (GH) during the follicular development in the bovine ovary. *Animal Reproduction Science*. 106: 143-152
- SHRESTHA H.K., NAKAO, T., HIGAKI, T., SUZUKI, T., AKITA, M. 2004. Effects of abnormal ovarian cycles during pre-service period postpartum on subsequent

- reproductive performance of high producing Holstein cows. *Theriogenology*. 61: 1559–1571
- SILVA, J.R.V., FIGUEIREDO, J.R., van den HURK, R. 2009. Involvement of growth hormone (GH) an insulin-like growth factor (IGF) system in ovarian folliculogenesis. *Theriogenology*. 71: 1193-1208.
- SILVESTRE, F.T., RUTLIGLIANO, H.M., THATCHER, W.W., SANTOS, J.E.P., STAPLES, C.R. 2007. Effect of selenium source on production, reproduction, and immunity of lactating dairy cows. Florida Ruminant Nutrition Symposium. Florida. US. 30th-31st January 2007.
- SILVIA, W.J., HATLER, T.B., NUGENT, A.M., LARANJA DA FONSECA, L.F. 2002. Ovarian follicular cysts in dairy cows: An abnormality in folliculogenesis. *Domestic Animal Endocrinology*.23: 167-177
- SINGH, J., PIERSON, A., ADAMS, G.P. 1998. Ultrasound image attributes of bovine ovarian follicles and endocrine and functional correlates. *Journal of Reproduction and Fertility*. 112: 19-29
- SIROIS J., FORTUNE, J.E. 1988. Ovarian follicular dynamics during the estrous cycle in heifers monitored by real-time ultrasonography. *Biology of Reproduction*. 39: 308–317
- SMITH, M.F., McINTOSH, E.W., SMITH, G.W. 1994. Mechanisms associated with corpus luteum development. *Journal of Animal Science*. 72: 1857-1872
- SPICER, L.J., ALPIZAR, E., ECHTERNKAMP, S.E. 1993. Effects of insulin-like growth factor I, and gonadotropins on bovine granulosa cell proliferation, progesterone production, estradiol production and (or) insulin like growth factor I production in vitro. *Journal of Animal Science*. 71: 1232-1241
- SPICER, L.J. 2004. Proteolytic degradation of insulin-like growth factor binding proteins by ovarian follicles: a control mechanism for selection of dominant follicles. *Biology of Reproduction*. 70: 1223-1230
- SPICER, L.J., AAD, P.Y. 2007. Insulin-like growth factor (IGF) 2 stimulates steroidogenesis and mitosis of bovine granulosa cells through the IGF-1 receptor: Role of follicle stimulating hormone and the IGF 2 receptor. *Biology of Reproduction*. 77: 18-27
- SPICER, L.J., AAD, P.Y., ALLEN, D.T., MAZERBOURG, S., PAYNE, A.H., HSEUH, A.J. 2008. Growth differentiation factor 9 (GDF-9) stimulates proliferation

- and inhibits steroidogenesis by bovine theca cells: influence of follicle size on responses to GDF-9. *Biology of Reproduction*. 78(2): 243-253
- SPRECHER, D.J., NEBEL, R.L., WHITTIER, W.D. 1988. Predictive value of palpation per rectum vs. milk and serum progesterone levels for the diagnosis of bovine follicular and luteal cysts. *Theriogenology*. 30(4): 701-710
- STEWART, R.E., SPICER, L.J., HAMILTON, T.D. 1995. Effects of insulin-like growth factor and insulin on proliferation and on basal and luteinizing hormone-induced steroidogenesis of bovine thecal cells: involvement of glucose and receptors for insulin-like growth factor I and luteinizing hormone. *Journal of Animal Science*. 73: 3719-3731
- STEWART, R.E., SPICER, L.J., HAMILTON, T.D., KEEFER, B.E., DAWSON, L.J., MORGAN, G.L., ECHTERNKAMP, S.E. 1996. Levels of insulin-like growth factor (IGF) binding proteins, luteinizing hormone and IGF-I receptors, and steroids in dominant follicles during the first follicular wave in cattle exhibiting regular estrous cycles. *Endocrinology*. 137: 2842-2850
- STOCCO, C., TELLERIA, C., BIBORI, G. 2007. The molecular control of corpus luteum formation, function and regression. *Endocrine Reviews*. 28(1): 117-149
- STOKOL, T., NYDAM, D.V. 2005. Effect of anticoagulant and storage conditions on bovine nonesterified fatty acid and β -hydroxybutyrate concentrations in blood. *Journal of Dairy Science*. 88: 3139-3144
- STRANG, B.D., BERTICS, S.J., GRUMMER, R.R., ARMENTANO, L.E., 1998. Effect of long-chain fatty acids on triglyceride accumulation, gluconeogenesis, and ureagenesis in bovine hepatocytes. *Journal of Dairy Science*. 81(3): 728-739
- STUBBS, S.A., HARDY, K., DA SILVA-BUTTKUS, P., STARK, J., WEBBER, L.J., FLANNAGAN, A.M., THEMME, A.P.N., VISSER, J.A., GROOME, N.P., FRANKS, S. 2005. Anti-Mullerian hormone protein expression is reduced during the initial stages of follicle development in human polycystic ovaries. *The Journal of Clinical Endocrinology and Metabolism*. 90(10): 5536-5543
- TANGHE, S., van SOOM, A., MEHRZAD, J., MAES, D., DUCHATEAU, L., de KRUIF, A. 2003. Cumulus contribution during bovine fertilisation in vitro. *Theriogenology*. 60(1): 135-149
- TEBBLE, J.E., O'DONNELL, M.J., DOBSON, H. 2001. Ultrasound diagnosis and treatment outcome of cystic ovaries in cattle. *Veterinary Record*. 148: 411-413

- TEDESCO, D., TAVA, A., GALLETI, S., TAMENI, M., VARISCO, G., COSTA, A., STEIDLET, S. 2004. Effects of silymarin, a natural hepatoprotector, in periparturient dairy cows. *Journal of Dairy Science*. 87(7): 2239-2247.
- TETSUKA, M., WHITELAW, P.F., BREMNER, W.J., MILLAR, M.R., SMYTH, C.D., HILLIER, S.G. 1995. Developmental regulation of androgen receptor in the rat ovary. *Journal of Endocrinology*. 145(3): 535-543
- THUN, R., KAUFMANN, C., JANETT, F. 1998. The influence of restraint stress on reproductive hormones in the cow. *Reproduction in Domestic Animals*. 33(3-4): 255-260
- TILLY, J.L., BILLIG, H., KOWALSKI, K.I., HSEUH, A.J.W. 1992. Epidermal growth factor and basic fibroblast growth factor suppress the spontaneous onset of apoptosis in cultured rat granulosa cells and follicles by a tyrosine kinase-dependent mechanism. *Molecular Endocrinology*. 6: 1942-1950
- TISDALL, D.J., WATANABE, K., HUDSON, N.L., SMITH, P.R., McNATTY, K.P. 1995. FSH receptor gene expression during ovarian follicle development in sheep. *Journal of Molecular Endocrinology*. 15: 273-281
- TODOROKI, J., NOGUCHI, J., KIKUCHI, K., OHNUMA, K., OZAWA, M., KANEKO, H. 2004. Plasma concentrations of inhibin A in cattle with follicular cysts: relationships with turnover of follicular waves and plasma levels of gonadotropins and steroid hormones. *Domestic Animal Endocrinology*. 27(4): 333-344
- TODOROKI, J., YAMAKUCHI, H., MIZOSHITA, K., KUBOTA, N., TABARA, N., NOGUCHI, J., KIKUCHI, K., WATANABE, G., TAYA, K., KANEKO, H. 2001. Restoring ovulation in beef donor cows with ovarian cysts by progesterone-releasing intra-vaginal silastic devices. *Theriogenology*. 55(9): 1919-1932
- TSONIS, C.G., HILLIER, S.G., BAIRD, D.T. 1987. Production of inhibin bioactivity by human granulosa-lutein cells: Stimulation by LH and testosterone in vitro. *Journal of Endocrinology*. 112: R11-R14
- TSOUSIS, G., SHARIFI, R., HOEDEMAEKER, M. 2009. Associations between the clinical signs of chronic endometritis with ovarian cysts and body condition loss in German Holstein Friesian cows. *Journal of Veterinary Science*. 10(4): 337-341
- UENOMA, Y., OKUDA, K. 1997. Regulation of oxytocin receptors in bovine granulosa cells. *Biology of Reproduction*. 57(3): 569-574
- URIBE, H.A., KENNEDY, B.W., MARTIN, S.W., KELTON, D.F. 1994. Genetic

- parameters for common health disorders of Holstein cows. *Journal of Dairy Science*. 78:421-430
- VAN SAUN, R.J. 2000. Blood profiles as indicators of nutritional status. *Advances in Dairy Technology*. 12: 401-410
- van WEZEL, I.L., DHARMARAJAN, A.M., LAVRANOS, T.C., RODGERS, R.J. 1999. Evidence for alternative pathways of granulosa cell death in healthy and slightly atretic bovine antral follicles. *Endocrinology*. 140: 2602-2612
- van WEZEL, I.L., RODGERS, R.J., 1996. Morphological characterisation of bovine primordial follicles and their environment in vivo. *Biology of Reproduction*. 55: 1003-1011
- VANHOLDER, T., LEROY, J.L., DEWULF, J., DUCHATEAU, L., CORYN, M, de KRUIF, A., OPSOMER, G. 2005. Hormonal and metabolic profiles of high-yielding dairy cows prior to ovarian cyst formation or first ovulation postpartum. *Reproduction in Domestic Animals*. 40(5): 460-467
- VANHOLDER, T., OPSOMER, G., DE KRUIF, A. 2006. Aetiology and pathogenesis of cystic ovarian follicles in dairy cattle: a review. *Reproduction Nutrition Development*. 26: 105-119
- VILLA-GODOY, A., HUGHES, T. L., EMERY, R. S., CHAPIN, L. T., FOGWELL, R. L. 1988. Association between energy balance and luteal function in lactating dairy cows. *Journal of Dairy Science*. 71:1063-1072.
- VOUTILAINEN, R. MILLER, W.L. 1987. Coordinate tropic hormone regulation of mRNAs for insulin-like growth factor II and the cholesterol side-chain cleavage enzyme, P450scc, in human steroidogenic tissues. *Proceedings of the National Academy of Sciences of the United States of America*. 84: 1590-1594
- WANG, Y., ASSELIN, E., TSANG, B.K. 2002. Involvement of transforming growth factor α in the rat ovarian X-linked inhibitor of apoptosis protein expression and follicular growth by follicle stimulating hormone. *Biology of Reproduction*. 66: 1672-1680
- WATHES, D.C., CHENG, Z., BOURNE, N., TAYLOR, V.J., COFFREY, M.P., BROTHER, S. 2007a. Differences between primi-parous and multiparous dairy cows in the inter-relationships between metabolic traits, milk yield and body condition score in the peri-parturient period. *Domestic Animal Endocrinology*. 33: 203-225
- WATHES, D.C., FENWICK, M., CHENG, Z., BOURNE, Z., LLEWELLYN, S.,

- MORRIS, D.G., KENNY, D., MURPHY, J., FITZPATRICK, R. 2007b. Influence of negative energy balance on cyclicity and fertility in the high producing dairy cow. *Theriogenology*. S232-2241
- WEBB, R., CAMPBELL, B.K., GARVERICK, H.A., GONG, J.C., GUTTIEREZ, C.G., ARMSTRONG, D.G. 1999. Molecular mechanisms regulating follicular recruitment and selection. *Journal of Reproduction and Fertility (Suppl)*. 54: 33-48
- WENSING, Th., KRUIP, Th., GEELEN, M.J.H., WENTINK, G.H., van den TOP, A.M. 1997. Postpartum fatty liver in high-producing dairy cows in practice in animal studies. The connection with health, production and reproduction problems. *Comparative Haematology International*. 7: 167-171
- WESTERGAARD, L.G. 1991. Follicular atresia in the human ovary. In *Local regulation of ovarian function*. (Eds N-O. Sjöberg, L. Hamberger, P.O. Janson, C. Owman and H.J.T. Coelingh-Bennink) pp 21-38. The Parthenon Publishing Group, Lancashire, UK
- WESTERGAARD, L.G., ANDERSEN, C.Y. 1989. Epidermal growth factor (EGF) in human pre-ovulatory follicles. *Human Reproduction*. 4: 257-260
- WHEELER, M.B., SCHEER, J.W., ANDERSON, G.B., BONDURANT, R.H. 1979. Postpartum fertility in beef cattle producing twins. *Theriogenology*. 12(6): 383-387
- WHITAKER, D. A. 2000. Use and interpretation of metabolic profiles. In *The Health of Dairy Cattle*. Ed A. H. Andrews. Oxford, Blackwell Science. pp 89-107
- WHITMAN, R.W. 1975. Weight change, body condition and beef cow reproduction. PhD. Thesis, Colorado State University, Fort Collins, USA.
- WILDMAN, E. E., JONES, G. M., WAGNER, P. E., BOMAN, R. L., TROUTT JR, H. F., LESCH. T. N. 1982. A dairy cow body condition scoring system and its relationship to selected production characteristics. *Journal of Dairy Science*. 65:495-501
- WILTBANK, M.C., FRICKE, P.M., SANGSRITAVONG, S., SARTORI, R., GINTHER, O.J. 2000. Mechanisms that prevent and produce double ovulations in dairy cattle. *Journal of Dairy Science*. 83(12): 2998-3007
- WOLFENSON, D., LEW, B.J., THATCHER, W.W., GRABER, Y., MEIDAN, R. 1997. Seasonal and acute heat stress effects on steroid production by dominant follicles in cows. *Animal Reproduction Science*. 47: 9-19
- WOLFENSON, D., ROTH, Z., MEIDAN, R. 2000. Impaired reproduction in heat-stressed cattle: basic and applied aspects. *Animal Reproduction Science*. 60-61: 535-

- WOLFENSON, D., THATCHER, W.W., BADINGA, L., SAVIO, J.D., MEIDAN, R., LEW B.J., BRAW-TAL, R., BERMAN, A. 1995. Effect of heat stress on follicular development during the estrous cycle in lactating dairy cattle. *Biology of Reproduction*. 52: 1106-1113
- WU, X., CHEN, L., BROWN, C.A., YAN, C., MATZUK, M.M. 2004. Interrelationships of growth differentiation factor-9 and inhibin in early folliculogenesis and ovarian tumorigenesis in mice. *Molecular Endocrinology*. 18(6). 1509-1519
- WUNSCH, A., SONNTAG, B., SIMONI, M. 2007. Polymorphism of the FSH receptor and ovarian responses to FSH. *Annales D'Endocrinologie*. 68: 160-166
- XU, Z., GARVERICK, H.A., SMITH, G.W., SMITH, M.F., HAMILTON, S.A., YOUNGQUIST, R.S. 1995. Expression of follicle-stimulating hormone and luteinizing hormone receptor messenger ribonucleic acids in bovine follicles during the first follicular wave. *Biology of Reproduction*. 53: 951-957
- YAHIA KHANDOKER, M.A.M., IMAI, K., TAKAHASHI, T., HASHIZUME, K. 2001. Role of gelatinase on follicular atresia in the bovine ovary. *Biology of Reproduction*. 65: 726-732
- YANG, M.Y., FORTUNE, J.E. 2006. Testosterone stimulates the primary to secondary follicle transition in bovine follicles in vitro. *Biology of Reproduction*. 75: 924-932
- YANG, M.Y., FORTUNE, J.E. 2008. The capacity of primordial follicles in fetal bovine ovaries to initiate growth in vitro develops during mid gestation and is associated with meiotic arrest of oocytes. *Biology of Reproduction*. 78(6): 1153-1161
- YUAN, W, BAO, B., GARVERICK, H.A., YOUNGQUIST, R.S., LUCY M.C. 1998. Follicular dominance in cattle is associated with divergent patterns of ovarian gene expression for insulin-like growth factor (IGF)-I, IGF-II and IGF binding protein-2 in dominant and subordinate follicles. *Domestic Animal Endocrinology*. 15:55-63
- ZHANG, J., CADO, D, CHEN, A., KABRA, N.H., WINOTO, A. 1998. Fas-mediated apoptosis and activation-induced T-cell proliferation are defective in mice lacking FADD/Mort1. *Nature*. 392: 296-300
- ZULU, V.C., NAKAO, T., YAMADA, K., MORIYOSHI, M., NAKADA, K., SAWAMUKAI, Y. 2003. Clinical response of ovarian cysts in dairy cows after PRID treatment. *Journal of Veterinary Medical Science*. 65(1): 57-62
- ZULU, V.C., SAWAMUKAI, Y., NAKADA, K., KIDA, K., MORIYOSHI, M. 2002.

Relationship among insulin-like growth factor –I, blood metabolites and postpartum ovarian function in dairy cows. *Journal of Veterinary Medicine and Science*. 64(10): 879-885